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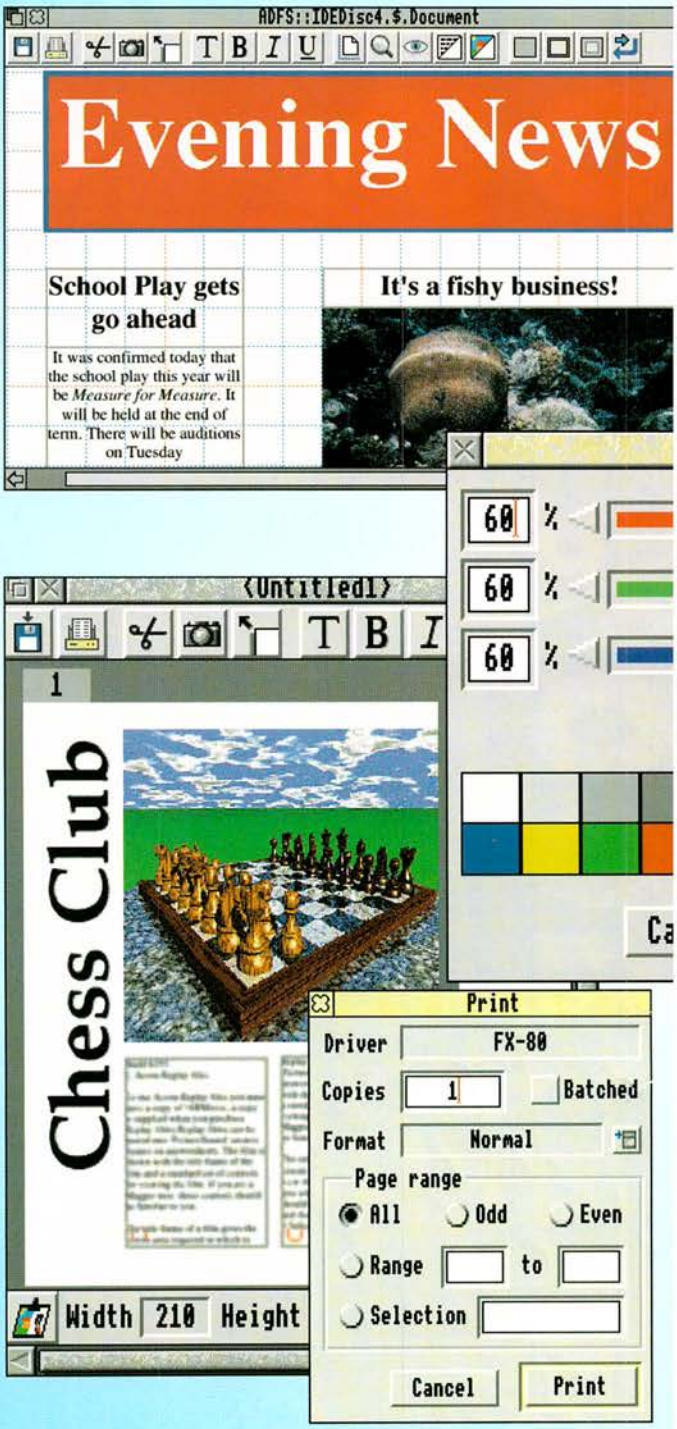

First Page *prices: £49 for a single user copy, £140 for a Primary School site licence and £190 for a Secondary School site licence. For more information about* ***First Page****, please contact:*

first PAGE

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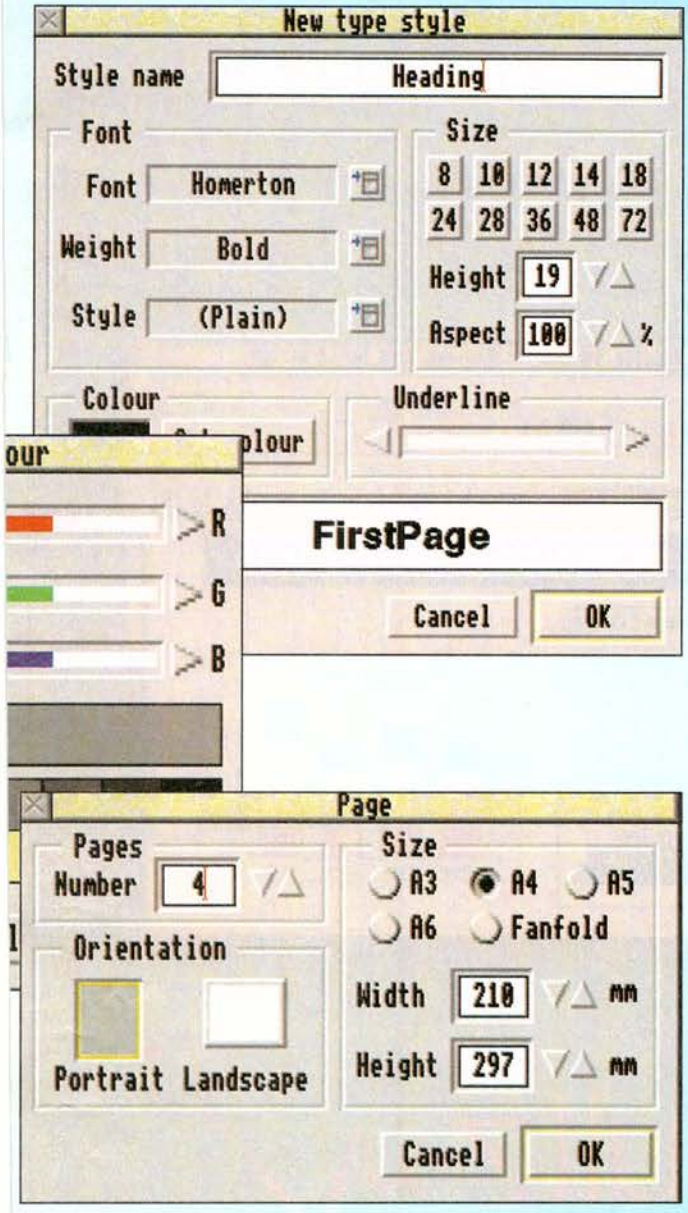

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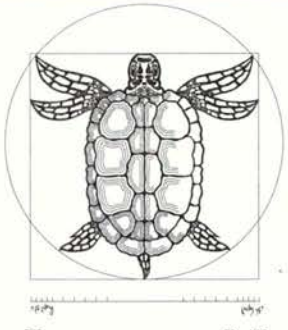


LONGMAN LOGOTRON

The first choice

first PAGE

New from the Archimedes' spreadsheet experts comes Resultz, the ultimate spreadsheet for RISC OS.

It's packed with powerful features to help you work fast, whether you're working on a classroom project or managing your business.

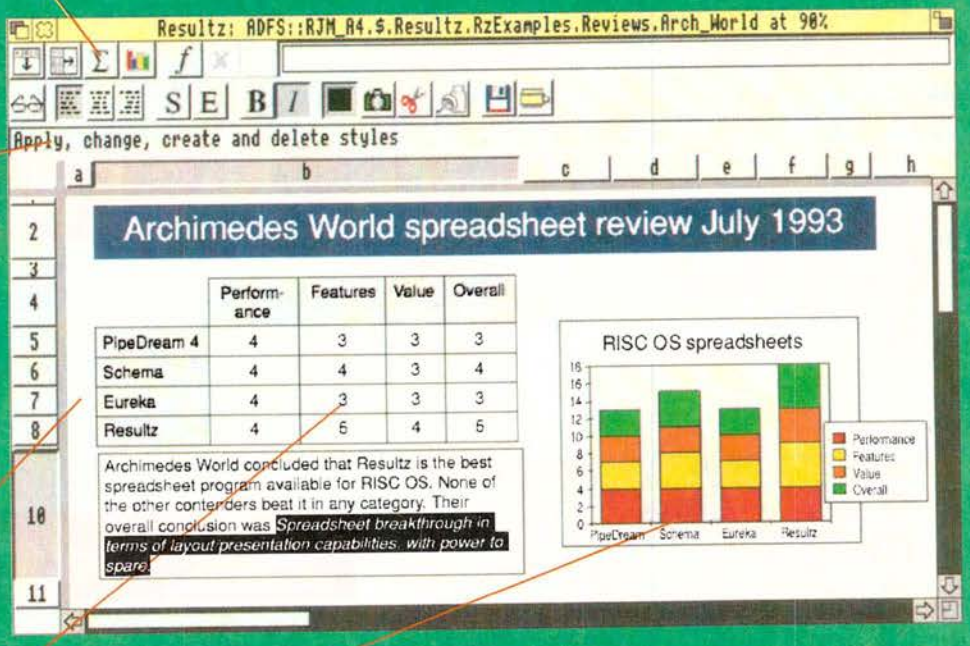
It recalculates faster than any competitor, and uses background recalculation so that you're never waiting for the computer to catch up. It will automate your work with the *Fill* and *Autosum buttons* - just select a group of numbers and Resultz writes a formula which adds them up automatically.

Resultz isn't just for power users. It's designed to help novice users work productively. Interactive help makes it easy to use Resultz' comprehensive set of functions. Every time you pick one of the 190 built-in functions from the selector, *tips on using it appear on screen.*

Your data will look better than ever, with colourful charts incorporating your own pictures. Unlike other spreadsheets, Resultz shows your pages on screen, so what you see on screen is exactly what will print out on the page (we call it *spreadsheet DTP*). The style editor places fonts and formats at your fingertips. It's easy to build *tables* and *forms*, and to add *charts* or *pictures* to worksheets.

And Resultz is just £119+VAT.

Resultz and Wordz are the first members of the FireWorkz suite of programs, designed to share the same intuitive easy-to-use interface, and to make it easy to share data between word processor, database and spreadsheet. . .


Resultz: ADFS::RJM_A4.$.Resultz.RzExamples.Reviews.Arch_World at 98%
Apply, change, create and delete styles
Archimedes World spreadsheet review July 1993
Perform-ance
Features
Value
Overall
PipeDream 4 4 3 3 3
Schema 4 4 3 4
Eureka 4 3 3 3
Resultz 4 5 4 5
Archimedes World concluded that Resultz is the best spreadsheet program available for RISC OS. None of the other contenders beat it in any category. Their overall conclusion was Spreadsheet breakthrough in terms of layout presentation capabilities, with power to spare.
RISC OS spreadsheets
Performance
Features
Value
Overall
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Schema
Eureka
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May issue – on sale 3 May 1994

ACORN ACCESS

NOW you can network and share resources between two to thirty machines really easily, see how it's done in our feature starting on Page 35.

REGULARS

Comment 15
Is the PC a malign influence? Steve Turnbull tells a fairy story straight from the Brothers Grimm.

News 17
All the latest news of products and events taking place in the fast changing world of the Acorn computer.

TechForum 63
Are you an expert programmer? Our hints and tips series is just for you with ideas and algorithms to help you work.

Public Domain 67
Teri Paul is back again with her pick of public domain and shareware programs to enhance your computer.

Databay 78
Game gossip, interviews and up-to-the-minute news picked up by HAL, our electronic ear to the ground.

Problem Solved 85
Our technical editor opens his mail and shares the secrets behind some of those tricky hardware problems.

Body Building 91
Mike Cook explores a whole new avenue in fund-raising ideas that you can create with the help of your Acorn machine.

Letters 96
This is your opportunity to voice your news, ideas and views on everything in the Acorn world.

FEATURES

MegaDisk 6
Check out what's in store for you this month on the best cover disk available for the Acorn 32-bit RISC OS range.

32-bit Subscribers 9
Our special extra subscriber's disk is jam packed full of goodies so find out what's on it this month.

BBC Disk 13
Full details on what's on the subscription disk for the 8-bit BBC Micro this month, and how to use it.

Flowsnakes 30
With fractals and snowflakes there's an infinity of beautiful and amazing designs to be created.

Acorn Access 35
Find out how easy it is to install the new networking system from Acorn that makes resource sharing even easier.

Tullie House Resources 43
Is it possible to under-use a resource pack? Perhaps it is if you see what can be done using Frontier 2000.

Tullie House Offer 47
If you're a teacher this is your chance to get a resource pack completely free.

Active IT 51
We sent the entire Cook family off to investigate the Superchoice Active IT weekend and this is what happened.

Graphics 64
Mike Goldberg concludes his look at the British weather by getting out his mac and wellies.

REVIEWS

Learning Curve 25
We survey the latest in educational software for the Acorn computers:
- Complete Control
- Cars – Maths in Motion
- Dinosaur Discovery
- Oxford Reading Tree

Short reviews 57
We check a selection of programs and utilities especially for the programmer:
- DeskEdit 3
- Digistore

Almanac 3 61
After nearly a year we check out the progress of this excellent personal organiser and see what you can do.

Screenplay 70
All systems go as we look at the latest for 32-bit Acorn machines:
- Diggers
- Speedball II
- KV
- Hermes

STOP PRESS

APPLE'S RISC TOO FAR? Read all about it on Page 17.

THE MEGADISK

Britain's best Acorn cover disk contains hours of fun and a host of useful utilities linked to our editorial features to make the magazine come alive on your desktop.

Full details about the packed Megadisk – see Page 4.

- **Langdale**
  A walk in the Lakes with extras
- **Flowsnakes**
  The magical world of fractals revisited
- **Weatherman 2**
  Put your weather on the map and save it
- **Databay**
  Seven great cheats for games old and new
- **TechForum**
  Make a date and get it right

Subscribe now! – See page 60

SUBSCRIBE to *Acorn Computing* and you'll get an amazing value-for-money deal that beats all our rivals: Not only do you get a whole year's-worth of issues for LESS than any other Acorn magazine, 32-bit owners get TWO disks every month.

See Page 60 for details of this unbeatable offer.

If you have a BBC Micro, *Acorn Computing* is the only newsstand magazine that still supports you. Every month we have complete programs written specially for you and your computer.

To subscribe turn to Page 60

GET YOUR NEWSAGENT TO RESERVE YOUR COPY NOW – SEE PAGE 12
AVAILABLE AT W.H. SMITHS AND ALL GOOD NEWSAGENTS

The MegaDisk

What's on this month

- Langdale
- Programs from the magazine
- Review Index
- System, SysMerge and Scrap

Langdale: Explore the Lake District

THIS enormous package is only available on CD-Rom for £149 or you can buy two projects separately on floppy disk – Stickle Project and River Project – for £89 each. However, Creative Curriculum Software (0422 340524) have compiled a special version exclusively for readers of *Acorn Computing*.

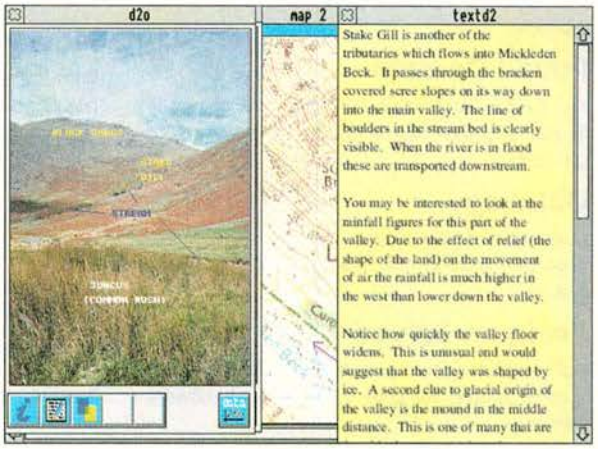
The Langdale valley is a unique part of the Lake District and is an ideal subject area for anyone interested in Geography. This program brings the location to you. As well as a comprehensive resource of Ordnance Survey maps there are diagrams, aerial and ground photographs, data, statistics, charts and sounds.

This data is explored using eight applications using the principle of *hot spots*. Not only can you see the scenic views but you can look behind these examining data on overlays and accessing masses of additional information covering three major elements of the Geography curriculum – human, physical and environmental geography.

Of general interest for Key Stage 3 Geography users, Langdale provides a massive bank of data. The program has been created using Genesis and APA's GenUp applications, which means you will need access to a machine with 2Mb of ram and running RISC OS 3.

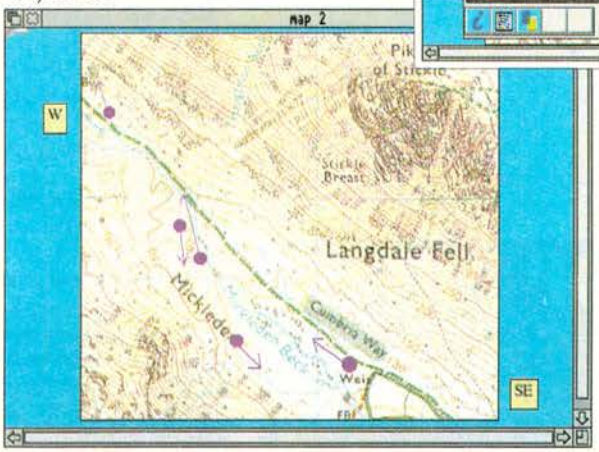
The *Acorn Computing* version of Langdale gives you four of the 250 *hot spots* on the CD-Rom version. You can use this alone, as project work or for walkers to plan a route of interest...

● *A variety of information is available at the click of a button*

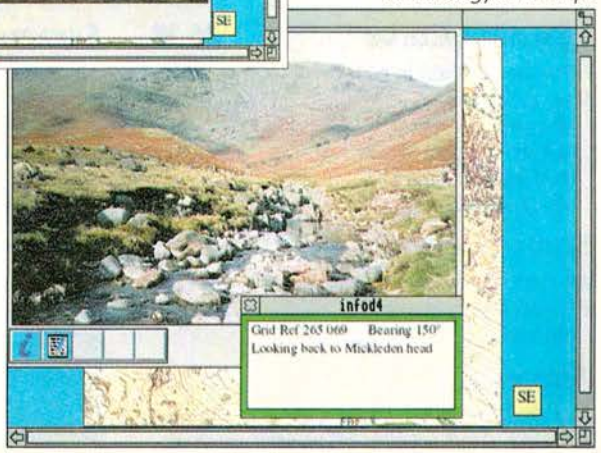

d2o
map 2
textd2
Stake Gill is another of the tributaries which flows into Mickleden Beck. It passes through the bracken covered scree slopes on its way down into the main valley. The line of boulders in the stream bed is clearly visible. When the river is in flood these are transported downstream.
You may be interested to look at the rainfall figures for this part of the valley. Due to the effect of relief (the shape of the land) on the movement of air the rainfall is much higher in the west than lower down the valley.
Notice how quickly the valley floor widens. This is unusual and would suggest that the valley was shaped by ice. A second clue to glacial origin of the valley is the mound in the middle distance. This is one of many that are

● *Photographs are enhanced by text, graphics and statistics...*

● *Discover Mickleden Beck for yourself*



● *...and everything is related or OS terminology and maps*

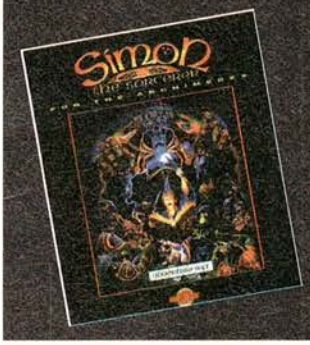


ArcFS – Latest version 2.23

If you have the read/write version of Mark Smith's ArcFS you may have been experiencing some problems loading the MegaDisk. Mark has changed the filetype of the latest versions – which is what we are using for the MegaDisk. If you don't plan to update your read/write version, then when you click on the floppy drive to load the MegaDisk hold down the Ctrl key. Then double-click on the ArcFS on the MegaDisk, then the menu icon. The programs will then load without error.

Simon the Sorcerer

You don't have to be eagle-eyed to notice that Simon the Sorcerer still hasn't made it to our cover disk. Unfortunately there are still problems with it that have yet to be solved. The breakthrough could come at any moment so watch this space for details.



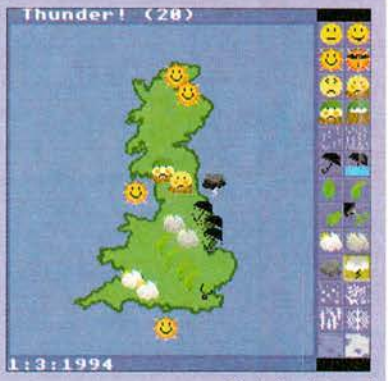
Next Month

Millennium's first foray into the Acorn market comes with Diggers – reviewed on page 70 – and you can try a special version for yourself on the May issue of *Acorn Computing*, on sale 3 May. Plus there is an array of utilities and educational programs, just for you.

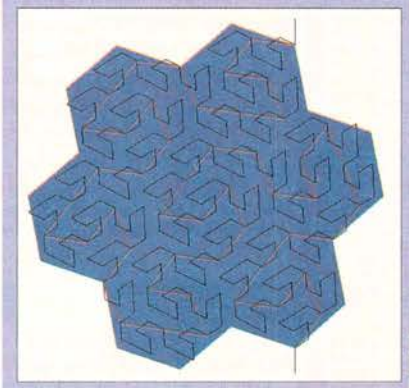
● *Treasures await you in this subterranean world*

Programs from the magazine

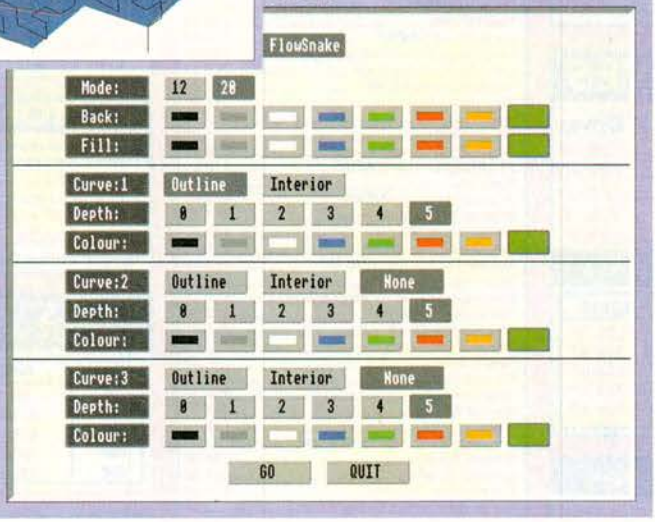
- **Databay**: Cheats for Tower of Babel, Blitz, Crisis, Demons Lair, Nebulous, Pysanski, Revelation
- **Body Building:** Racer will help you with a bit of fund raising
- **Graphics:** The concluding weather mapping programs from Mike Goldberg
- **TechForum:** !ConvDate will make RISC OS 3 work for you
- **Flowsnakes**: Shows you how to create your own *Snowflake* and *Flowsnake* fractals



● *Animate and personalise your weather*



● *Experiment with your own fractals*



FAULTY DISK?

If your cover disk has a physical fault – doughnut won't rotate in the sleeve, disk errors and so on – please return it for replacement to:

PC Wise Ltd
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CF48 2YY

If there seems to be a fault with one of the programs please contact us by post describing your machine set- up and exactly what happens when you run the program.

Getting started with the MegaDisk

THE programs on this disk are stored in a highly compressed format which sometimes enables as much as 1.6Mb of programs and data to be stored on a 800k floppy disk

The procedure for running the programs is very straightforward and does not require learning any special methods or techniques.

Switch on your Acorn micro, put the disk in the drive and click the drive icon. Now double-click !ACmenu – there's a short pause while it scans the archive then it displays a window of the contents. You can treat this new window like any other one for viewing disk contents, and run programs and open directories by double-clicking them.

Large programs must be unpacked by dragging them on to a separate disk before being run. Some may have an !Install program that will do it for you.

We recommend that you always read the !ReadMe files or access the help information via the Help button.

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High quality colour SVGA monitor. .28 dot pitch

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From the M1 follow signs for the M621. Take A643 Elland Rd turnoff from M621. Follow signs for A58. This merges with Armley gyratory.
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Axel: Explore another dimension

FAR into deep space, exploration ships venture to new worlds. In one system, a moon orbiting a large planet inhabited by hostile aliens has been set up as a defence. The moon, Axel, is host to a large array of weaponry, which is set to destroy any intruders who try to land on the aliens' planet.

The aliens are a threat to exploration since their planet lies in the orbit of new major trading routes. These could fall victim to an attack from the moon, since its weapons are automatically controlled by computers.

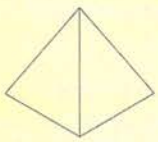
You have been sent to Axel to deactivate the defences on the moon. Your attack craft is small enough to have penetrated the defences, though a tractor beam has dragged it towards the moon and trapped you there. Your only escape is to destroy all defences and deactivate the systems which prevent your ship taking off from the moon.

The mission is very important, since the Galactic Starfleet has a starship passing by the moon's orbit and if the moon is not destroyed then the ship will be destroyed, which would mean the deaths of hundreds of StarFleet officers.

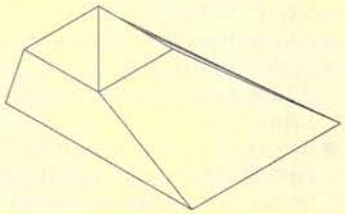
Your mission... You must use the keyboard or mouse – by interacting with the icon display at the base of the screen – to control your movement on the moon. Your total aim is to destroy all of the guns, both standard and advanced, cannons and both of the large core sections on the light and dark sides of the moon. You must then escape from the moon. Good luck.

Controls

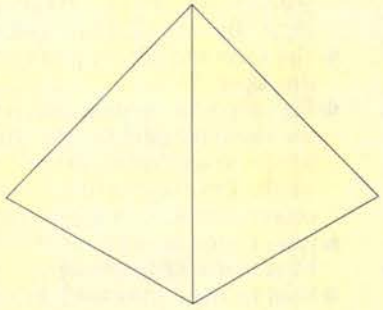
Forward	O
Backward	K
Left	J
Right	H
Up	R
Down	F
Turn left	Q
Turn right	W
Rotate up	P
Rotate down	L
Centre view	I
U-turn	U
Quit	Esc
Fire	Space
Activate	A
Sights toggle	C
Save position	1
Load position	2



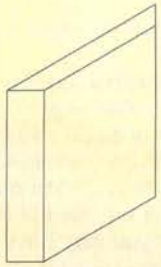
These are standard gun emplacements. They take one shot to kill, though some are optimised in their firing range and speed.



These are more advanced gun emplacements. They take four shots to their top section, since their base will absorb the first three shot and transfer the energy to the ground. They hover slightly above the ground, and their slightly flat top makes them hard to shoot from a distance.



This is an anti-aircraft cannon, designed to destroy airborne intruders. They are invulnerable to laser fire, and must be deactivated at their power source instead.



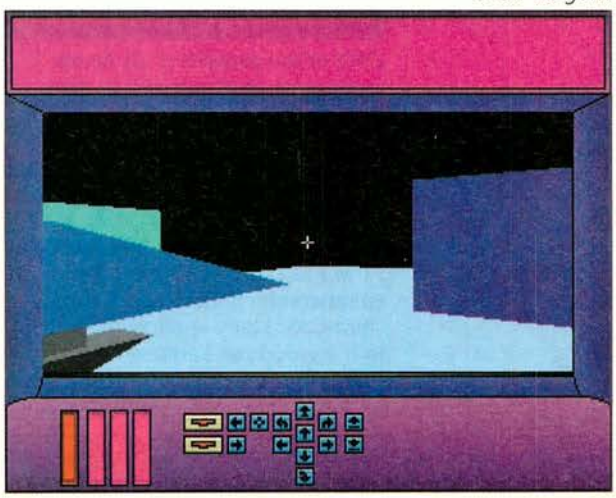
This is a computer circuitry case (CCC). They contain large computers which control cannons, etc. They should be cut off from their power supply before being destroyed with lasers.

Alan Stonebridge

What's on this month

- **Axel – three dimensional exploration**
- **Teri's choice – more useful and fun PD programs**
- **Classy keystrips – template drawfiles to help you out**
- **RunVar – a handy module for programmers**

● *Off we go...*



RunVar: Where's it run from?

IN the December 1993 letters page, G. J. Done was having a problem running 8-bit BBC Micro programs on his 32-bit Acorn. In the reply, an interesting point cropped up regarding a *patch* to the operating system, which would set a system variable to point to the parent directory of every file of any given type that had been run.

The ARM code module presented here makes this possible and provides the same facility for files that have been *LOADed instead of run.

The module creates a system

➤

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PC Wise Ltd
Dowlais Top
Business Park
Dowlais
Merthyr Tydfil
Mid Glamorgan
CF48 2YY

If there seems to be a fault with one of the programs please contact us by post describing your machine set- up and exactly what happens when you run the program.

➤

variable of the form:

```
RunFile_XXX$Dir
```

for files that have been *RUN and, similarly, for loaded files:

```
LoadFile_XXX$Dir
```

In each case, the *XXX* refers to the filetype of the file in question – just so that things don't get confusing. In use, it is quite transparent and just needs to be loaded by a *RMLoad or by double-clicking on its icon in the desktop.

The module is called RunVar and only takes up 712bytes so you can always have it loaded.

It works by intercepting the FSControl vector and the File vector and pre-processing these if a file is to be run or loaded. The module obtains the filetype by calling OS_File 5 so it will work on RISC OS 2 and 3 machines.

Having done this, it obtains the directory name and then performs a *SET command to create the variable. It is not a difficult operation and the source is provided should you wish to read it – it's fully commented.

An example of its use would be with a non-multitasking Basic program, which we'll call *Fred*. When *Fred* is run, let's say from directory *Mine* on a floppy disk called *Disk3* which is drive zero, RunVar automatically creates the variable *RunFile_FFB$Dir* which would be set to:

```
adfs::0.Disk3.Mine
```

Supposing *Fred* needs to access a data file, called *FredData*, in the same directory as itself. All it needs to do is use a command like:

```
data%=OPENIN("<RunFile_FFB$Dir>.
FredData")
```

and it will always be able to find it.

This module shows that it is perfectly possible and actually quite easy to customise or extend Acorn's operating system in a way that is difficult, if not impossible, on other machines. It also takes up very little space while doing it.

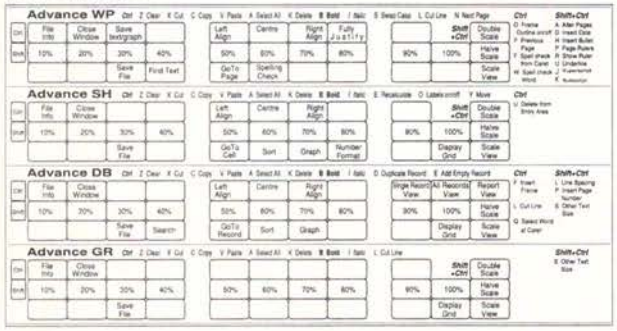
It should not be difficult to create many programs of this basic type to make your computer do what you want for you.

David Seery

Classy keystrips: Help at your fingertips

ONE of the benefits of all Acorn applications is the ability to use keyboard short-cuts for most of the menu options. Experienced users find this can save time, by removing the need to switch between the keyboard and mouse.

The provision of the function keys F1 to F12 and the Print key further enhances the possible scope for short-cuts. Many applications adhere to the guidelines laid down by Acorn – although these are only appearing on later applications – thus providing standardisation of the short-cuts.



● *The controls at your fingertips*

The recent integrated package from Acorn, Advance, sets a precedent by providing standard short-cuts across the four applications it contains. However, it does require new users to search through the manual each time they want to find a particular short-cut.

An alternative approach is to have a keystrip for each application which can be placed above the function keys. There have been a number of programs to generate keystrips, but most only provided a plain text or rectangular box type of output.

The built-in application, Draw, with the sans serif font Homerton can be used to good effect to generate a more pleasing type of keystrip. In addition all the short-cuts provided by the Control and Control+Shift key combinations can also be listed on the keystrip.

For those with access to printers such as the HP and Cannon BubbleJets, which will handle envelopes, there opens up the possibility of printing directly on to thick card. This can then be cut or guillotined to provide up to six keystrips on one A4 sheet.

There are two keystrips provided as examples. The first covers all the Advance applications and the second covers ArtWorks, Impression II, Draw and Edit. These can be edited for any other applications you may have. By simply editing the text you will find the font and style attributes will be retained.

In many cases key functions will remain the same for other applications. It is advisable to limit a page to four strips as the loading time can become excessive on ARM250 and ARM2 machines.

The strips are presented in landscape format which is the best format to use when editing or creating new strips.

To print:

- Load up your printer driver
- Ensure the Show option is ticked on the Draw/Misc/Printer limits sub-menu
- Select all objects
- Group them into a single object
- In the Transform/Rotate/Angle dialogue box type -90 and press Return
- Change the paper format to Portrait which will cause the print borders to be shown correctly – provided you have the A4 generic paper size selected for the printer
- The strips will now be partly off the paper
- Drag select the single object until it fits within the print borders. There will be no problems with the width, hence you will only need to concentrate on the top and bottom
- Press F3 and Save the modified file under a different name
- Load up the printer with the card or stiff paper
- Press the Print key, followed by Return

In my experience with a Canon BJ-10 the printer is able to print very close to the limits of an A4 sheet. The example keystrips will all print in full on these printers. With most dot matrix printers the print borders are greater, hence you may have to sacrifice some of the keystrip.

Alan Pratt

PD choice: Both interesting and useful

- **FontMgr** – replace !Fonts with a more manageable system
- **Backdrop** – go on, create your own Sticky Backdrop
- **Dino** – a PD version of this gruesome game
- **Samples** – a taster of what Player can give Next Gen and Python fans

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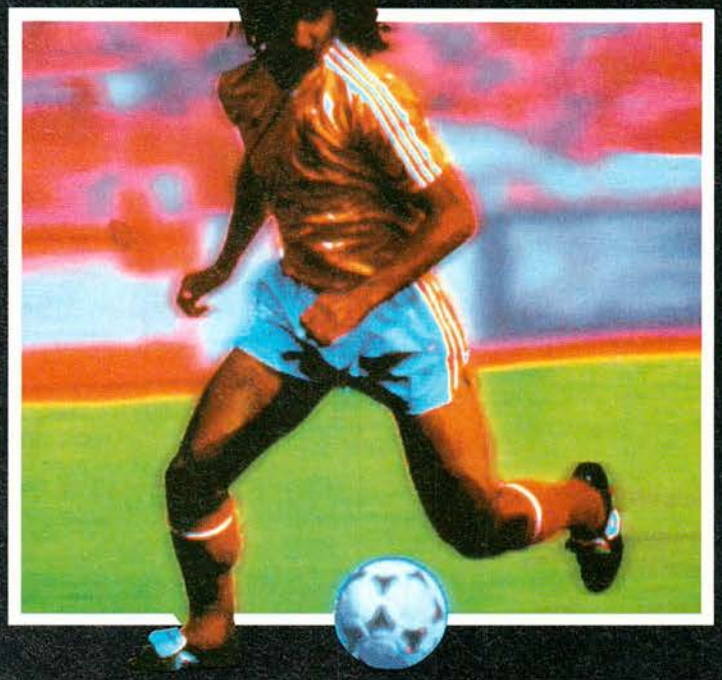

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Sensible SOFTWARE

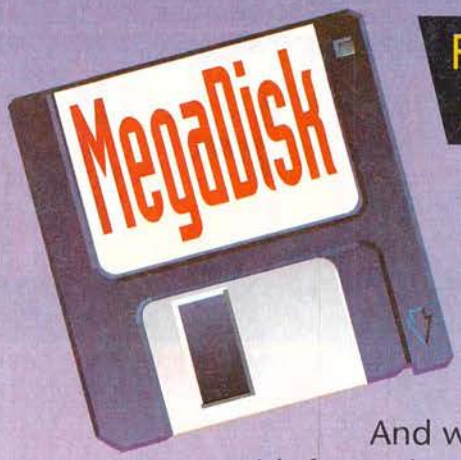
REVEALED

NEXT MONTH!

WHAT'S COMING IN THE NEXT ISSUE OF *ACORN COMPUTING*

ACORN'S LATEST PROJECT

In the next issue of Acorn Computing we'll be giving full details of Acorn's latest project, which will have far reaching and significant consequences for all users of Acorn equipment



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- TechForum: The ins and outs and the whys and wherefores
- News: The latest and the greatest up to date and in print just for you

Make sure you'll get your copy by filling out the coupon below and handing it to your newsagent. Or why not take out a subscription and have the magazine delivered direct to your door with *two* disks every month. Take a look at page 60.

Acorn COMPUTING

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Colony

... not quite Lemmings, but nearly

THIS month's subscription disk is totally devoted to a complete game from Michael Elson which, unfortunately, won't run under the !65Host on 32-bit machines. However, if you have access to a serial link you'll be able to download this from the 32-bit Subscription disk to a BBC B or Master.

But what is Colony? Well, the concept may seem very familiar ...

There is a tribe of cute but stupid beings in this world which need to escape from a variety of fates worse than death.

It is your responsibility to lead them through puzzling scenes and seemingly solid surfaces to their version of Valhalla.

Yes, Colony is based on Lemmings, which never made it on to the Acorn 8-bit machines – but as you can see from this, it can be done.

Getting going

Simply press Shift+Break and select the game from the main menu – it's the only one on there – then choose a level from the menu page.

When the game has started use Z, X, ' and / to move the pointer around. To scroll the screen move the pointer to the edge and hold down either the left or right keys.

Your mission is to guide your men from the left of the screen to their goal – a square at the right.

But there are various obstacles to be overcome to get them there. You get past the barriers by giving different skills to one or more of your men. This bit is slightly unusual so read carefully.

You can give a skill to an individual tribesman by moving the pointer over him then pressing and holding down Return. Everything stops and a small cursor appears at the top of the screen.

Move this left and right – with Z and X – to select the skill you want to apply to the tribesman. When you release Return the man will gain that ability.

The skills

Explode	The individual will spontaneously combust
Miner	He'll start digging – straight down
Digger	He'll also dig – but forwards
Builder	He prefers to build short bridge sections
Climber	Very useful for scaling walls
Faller	The benefit of parachute technology means he'll land on his feet
Blocker	He will hold back the others for you

The icon on the far right – Holocaust – will destroy all remaining colonists, but if you want them to speed up select the icon one in from the right to increase the rate at which they emerge from their home.

The object of each level is to rescue a given number in a set time. The time limit is shown on the right of the main screen.

When your time has gone the game freezes. When a level has ended – either because all your men have been saved or rescued – nothing will happen.

This is because Colony uses all available memory and there is none left for an ending screen. Just press Break and load another level. Enjoy.

Hints and tips

- Some types of walls are tough and cannot be dug through, you'll need a bit of lateral thinking
- Be careful on rope bridges, as they are destroyed if a man explodes above them

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If your subscription disk has a physical fault – doughnut won't rotate in the sleeve, disk errors and so on – please return it for replacement to:

Datapulse Disk
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Berkshire RG17 0LZ

If there seems to be a fault with one of the programs please contact us at the magazine by post describing your machine set-up and exactly what happens when you run the problem program.

Acorn COMPUTING

Don't miss out on the great programs for the Acorn 8-bit machines that you can receive every month. From software written specially for *Acorn Computing* readers to an excellent selection of PD programs.

Subscribe now, turn to Page 60

ICS WIZZO (it's magic)

051-625 1006

The ideA range

ICS was the first company to offer IDE products for Acorns back in 1990; now they are the standard choice for new Acorn computers. Building on three years' experience we have continually improved our IDE filing system. It now offers the highest level of RISC OS compliance, and compatibility with at least 45 different hard discs tested by us. Can any other supplier make this claim?

Our IDEFS abolishes the RISC OS limit of 512 Mb, and offers extra features such as password protection, background operation, disc partitioning, and power saving (which allows some discs to stop spinning when idle).

Partitions can have different levels of protection. Family or pupils can access some of your files while you keep others safely out of their reach. Or you can simply protect the whole disc (reformatting is not required for this).

Our hard disc upgrade kits are based around two internal interfaces at present: IDEA3IN for the A3000 Series, and IDEARCIN for the A300/A400/A500 Series. All kits are designed to a high standard and include all the parts you will need.

IDEA3IN upgrade kits include an I²C expansion socket as standard. They come with a 2½" disc already attached, and are easy to fit once you have opened up your computer. You may safely take no notice of rumours still being spread that internal upgrades might not be safe in an A3000. We have adhered carefully to the guidelines in Acorn's technical specifications, and in three years have never come across a problem.

IDEARCIN upgrade kits provide a fast 16-bit link all the way from the computer to the hard disc. They can even be fitted to an A310 without a backplane – quite a cost saving. A second hard disc can easily be added later if required.

Interfaces and hard discs can also be bought separately. By shopping around you may even save a few pounds. But beware: not all IDE hard discs work with all interfaces, and if you have a problem it may be difficult to decide who should put it right. We recommend buying a complete kit from one source.

WIZZO is the name given to our IDE filing system when it is supplied as a single rom chip. Wizzo5 is for the A5000, and Wizzo4 is for the A4. You should buy a Wizzo if you need password protection or wish to use larger hard discs. (Wizzo4 has been delayed slightly – we are adding a feature to ensure compatibility with possible future A4 upgrades).

A Wizzo rom by itself will only produce a slight speed improvement. If you need speed in an A5000, fit an IDEARCIN interface instead. Up to 60% improvement can then be achieved, but this does depend which hard disc you use so do check with us first.

How to read our ideA product references

A number at the end is the nominal hard disc capacity in megabytes. We usually round this down, so the actual formatted capacity may be higher. All discs have auto-parking. Average access times vary but all are below 20 ms.

All prices shown exclude VAT and are subject to change without notice. The cost to us for hard discs can vary enormously from week to week – not always downwards! Your local dealer can obtain *ideA* products from us or from a distributor.

Archimedes A300/A400/A500 Series Internal Upgrades

Package includes formatted hard disc, ideA interface card, hard disc cradle and fittings, fan kit, replacement multi-purpose LED (power and drive status), manual with fitting instructions. Can be fitted to an A310 without a backplane. If a backplane is used it must be a 4-layer type. Easily fitted by most users.

IDEARCIN 40*	£175	IDEARCIN 330	£399
IDEARCIN 80*	£205	IDEARCIN 420	£499
IDEARCIN 170	£275	IDEARCIN 540	£650
IDEARCIN 240	£325	IDEARCIN 1000	£925

A3000 Series Fully Internal Upgrades

Package includes formatted hard disc mounted on ideA interface card, manual with fitting instructions. Fully internal, using internal expansion slot. Co-exists with floppy drive and memory upgrades. Fits the new 1992 computers. Easily fitted subject to Acorn warranty stipulations.

IDEA3IN 40	£175
IDEA3IN 80	£250
IDEA3IN 120	£299
A3000 FAN KIT (not usually required*)	£19

**Only required if the computer has been fully upgraded, e.g. with maximum memory AND Econet AND an external podule.*

Separates for hard disc upgrades

We can only guarantee the performance of ideA interface cards with hard discs we have tested ourselves, so please check if in doubt. If you are buying a hard disc for an A5000 please say so. If you intend to fit the disc in addition to an existing one we need to know the make and model of the existing disc. Acorn's interface does not support all makes of disc, and some models will work as a second disc but not on their own.

Hard discs on their own are listed as, for example, IDEA 80. An S at the end indicates a 2½" disc.

IDEARCIN (Archimedes Interface for Internal disc(s))	£60
IDEA3IN (A3000 Interface for Internal disc)	£75
ARCHIMEDES INTERNAL CRADLE KIT	£15
ARCHIMEDES A300 / A400 SERIES FAN KIT	£15
4-SLOT 4-LAYER BACKPLANE	£52
POWER CABLE FOR SECOND HARD DISC	£5
A5000 SECOND HARD DISC FITTING KIT	£15

IDEA40*	£125	IDEA330	£349
IDEA80*	£155	IDEA420	£449
IDEA170	£225	IDEA540	£600
IDEA240	£275	IDEA1000	£875

IDEA40S	£115
IDEA80S	£190
IDEA120S	£239

WIZZO IDE Filing System on rom

Package includes rom, manual and fitting instructions. Compatible with RISC OS 3.0 and 3.1. Allows up to four logical partitions over two physical drives. Each partition appears separately on the icon bar and can have different password protection. Makes use of existing Acorn hardware for maximum compatibility, but works with a wider range of hard discs. Security breaches using ADFS can be prevented. Can be fitted easily by a competent user.

Available now: WIZZO5 for A5000	£39
Available soon: WIZZO4 for A4	POA

Quantity discounts available • Dealer enquiries welcome

** Lower-capacity 3½" discs are now very hard to obtain. Please check availability before ordering.*

Big Blue in Blunderland

ONCE upon a time, ages and ages ago, when home computers didn't exist, there was a very big company called Big Blue – named after a legendary ox, hunted by an equally legendary woodsman.

Now, Big Blue made big computers for big industries and cared little for anyone else, because Big Blue had a secret weapon; it was called the sales force. And every day the sales force would walk into the offices of big industries and tell the poor little Company Buyer "You will buy our products, for we are the biggest and the best." And they did.

This state of affairs continued for many years, but one day Big Blue felt something snapping at its heels. At first it ignored the intrusion but it grew more insistent and Big Blue found that some of its food was being eaten before he got to it.

So Big Blue looked down and saw many little creatures that were making *personal* computers. Big Blue laughed at these strange little things but, realising that it might grow hungry if there were too many, it resolved that it too would make a *personal* computer.

Big Blue spoke to its hardware and software engineers and said: "Make me a *personal* computer and I will use my secret weapon to rid me of these snapping creatures." And so it was. Big Blue made a personal computer and called it PC, and the sales force went to the offices of big industries and said "Now you must buy the PC." And they did, by the million.

And much to Big Blue's surprise the desire for PCs was not a passing phase, and the snapping creatures did not go away but grew more numerous. Many grew large and copied the PC, riding on Big Blue's back. And Big Blue became hungrier and hungrier and angrier and angrier. "The PC is mine!" it cried but the snapping creatures only laughed and they grew, many as large as Big Blue itself.

Big Blue tried many tricks to stop the snapping creatures but all were foiled, and finally even the sales force was not enough. Eventually Big Blue stopped fighting and ran with the herd instead. But even so it never stopped looking for ways to grow again.

And that's the story of the PC and how it came to be the pernicious influence it is in personal computing today. It's a good word that *pernicious* – it means *wicked and extremely harmful*. It may seem a bit strong but it isn't – you see when IBM designed the PC it was genuinely believed (by them) that this was a passing phase and it would fade out after a couple of years.

For this reason the machine was not designed well – it was a quick, perhaps even botched, job – but the power of the IBM corporate sales team literally forced it into use in all the companies that had previously bought IBM mainframes even when they really didn't need them.

The naming of the machine, the IBM PC, where PC just means *personal computer*, essentially hijacked the snappy abbreviation to the point where no computer can call itself a PC without it being assumed that it contains an Intel processor. This situation is beginning to change though.

The idea that the PC is a *standard* is, and has always been, a joke. While admittedly less true now, the concept of PC-compatible is not a thing of black and white, it is all about shades of grey. And the shades are defined by the software that will run – even IBM have produced machines that weren't white.

You find wordings on games saying *For IBM PCs and 100% compatibles*. Now if the machines aren't compatible then they *cannot* be standard (by simple definition). The only thing that PCs are is *most used*.

But *most used* does not, contrary to the ideas of salesmen, mean *best*. Now it's quite true that the most important part of a computer is the software that will run on it, but that software has to run in a computer environment and on the PC that environment is called Windows.

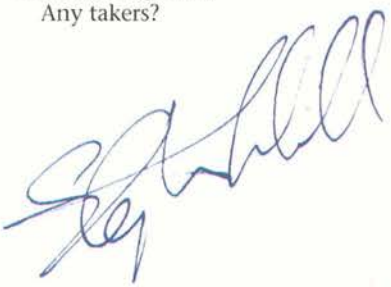
And Windows is not good, it is not intuitive and the processing power that it absorbes reduces, by at least half, the total power of the machine that the user gets to see. And it's *delivered power* that counts: How much *power* is delivered to you, the user, compared to the raw power generated by the processor itself?

It can probably be measured – for any given computer and operating system combination – by finding out how much processor time is spent working directly with the user as compared to carrying out operating system functions.

Now that would be a *real* measure of delivered power.

Any takers?

Steve Turnbull gives his opinions on the power of PCs



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The BJ-230 and

RISC OS 3 Turbo DRIVERS

The BJ-230 is a black and white inkjet printer from Canon that handles a variety of paper sizes up to A3. It comes with a built-in 80 page sheet feeder and power supply. With a print density of 360dpi the print quality is hard to distinguish from a laser printer and better than any other competing black and white inkjet printer.
A sample A4 print out is available on request so you can make the comparison. And like all inkjet printers the BJ-230 is whisper quiet and both easy and cheap to maintain.

Price:
The A3 BJ-230:
£289 + £10 p&p + VAT (£351.32 incl.)
The A4 BJ-200:
£229 + £10 p&p + VAT (£280.82 incl.)

The BJ-230 is only suitable for use with RISC OS 3.1. Suitable for all models of Archimedes, but a minimum of 2 Mbytes of RAM is required.

Computer Concepts Ltd

The BJ-230 is supplied with Computer Concepts' super-fast TurboDriver printer drivers - printing and returning control on average between three and ten times faster than the standard Acorn drivers or the Ace PRODrivers. The RISC OS 3 TurboDriver works with !Printers, which means for example that it can handle rotated text and sprite printing. If also offers full Postscript style control over screen density, screen angle and screen type to achieve the best possible print quality.

We are so confident about our combination of Canon BJ printers with TurboDrivers that we offer a no quibble, money back guarantee.

REVIEWS

"This is probably the best inkjet printer yet. .. whether used on its own or with the excellent TurboDriver, the BJ-200 is a fast printer and the print quality is simply superb. A winner."

Acorn User

"The TurboDriver excels at its task of providing quick, high quality output.. ..in my opinion it is well worth the money and will more than pay for itself in terms of better productivity."

Acorn Computing

The package includes the BJ-230 printer with TurboDrivers software, a cable, sample A4 sheets of high quality inkjet paper.

E&OE Prices & descriptions are subject to change.

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£4.5 million for primary CD-Roms

SCHOOLS minister Eric Forth has announced a £4.5 million scheme that "will equip a substantial number of our primary schools with CD-Rom equipment and software in the next few months".

This is the latest in a series of government initiatives to support IT in schools and is made in conjunction with GEST (Grants for Education Support and Training).

In addition, LEAs will be able to use part of £22 million – being made available to IT under GEST in 1994-5 – to provide CD-Rom drives, disks and training for both primary and secondary schools.

CD-Rom club

THE number of CD titles specifically for the Acorn machines is low at present – though this promises to balloon. To help the process David Rees and Peter Hughes are forming The Archimedes CD Club.

Their aim is to inform members of what is available for Acorn users in the PC market and if and how these can be run.

There are a number of PC CDs that do not need the PC Emulators and they have already tested six that will work faster without.

They also plan to produce limited edition CD-Roms. If you are interested then contact Desktop Laminations on 0272 799979.

Flexible keys

CASTLE Technology (0728 621222) have added to their range of alternative keyboards for the Acorn machines. The Silent Keyboard costs £95 and makes no click when the keys are depressed.

All Castle keyboards can now be connected to A3000 machines via the mouse socket and an adaptor cable.

A small PCB is also added to the machine. The price is £40 or £30 if you order it with a keyboard.

Foreign keyboards are also available with RISC OS drivers for USA, German, French, Italian, Spanish, Swedish, Swiss, Norwegian, Danish, Russian, Portugese and Arabic users.

Acorn bites Apple

ON Monday 14th March Apple Computer Inc released their PowerMac computer and stepped right into the lion's mouth with their inaccurate press releases. Despite earlier consultations with Acorn over certain wordings regarding computers with RISC chips inside them, Apple still managed to overstep the mark.

In just one press release examined (out of dozens they produced) Apple made no less than four false claims regarding the relative positions of Apple and Acorn to the development and commercial commitment to RISC technology.

This is what Apple said:

"To date, RISC technology has been used only in systems designed for raw computational power".

Acorn has shipped over 300,000 ARM-based machines for home, educational and professional use – try telling the kids playing Lemmings and teachers running Frontier 2000 that their system is designed for raw computational power.

"Apple is the only personal computer vendor publicly committed to moving its entire product line to RISC technology".

Acorn committed to RISC in 1983 – over ten years ago – when they started the design of the ARM chip. And in 1987 they publicly committed to the use of RISC technology throughout their range with the launch of the Archimedes range.

"...has resulted in the first mainstream RISC microprocessor that can be used in low-cost computers".

Independent market assessment proves that more ARM processors have been sold than any other – three times as many as the PowerPC consortium which makes the chip inside the PowerMac – if that's not *mainstream* what is?

"No other personal computer company is making the fundamental commitment to RISC demonstrated by Apple."

Acorn didn't invent the RISC concept, but it designed and built – from scratch – the first processor and machine to be commercially available at a realistic price using that concept. Looks like Apple are talking out of their *fundament.*

The fact that Apple and Acorn have a partnership in ARM Ltd *and* Apple use the ARM6 10 in their Newton personal digital assistant, just goes to show how blatant big American companies can be in their inaccuracies *and people will believe them.*

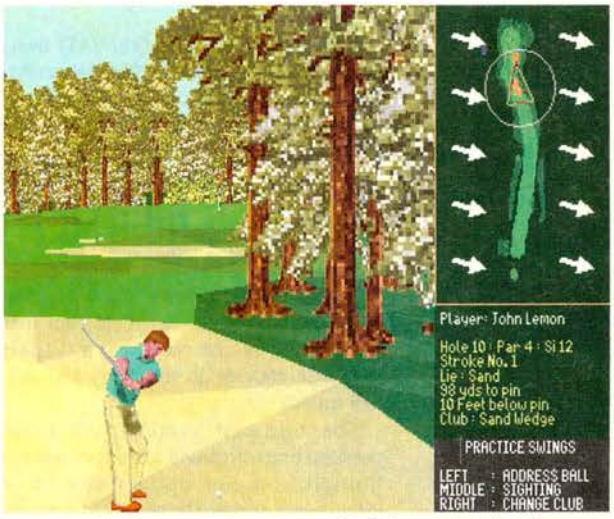
Acorn won't take them to court over it, because Apple have agreed to amend their product literature. But to what?

Rounding off

GOLFING enthusiasts need look no further than 4th Dimension (0742 700661) for a trip around the links at Augusta. Virtual Golf players can now indulge themselves by playing on this very special course which is now available.

For those of you who entered the Virtual Golf competition in the Special Issue of *Acorn Computing* here are the results. The final score was Rick 81 and Pete 109 (before handicap).

No one got it exactly right, but the closest seven are all winners: N.F. Halls, Egham; Paul Biggs, Derby; Emma McHaffie, Kelso; A.M. Searl-Jones, Droitwich; J Green, Woodbridge; S. France, St Peter Port and N.R. Holcroft from Peterlee.



● *Enjoy a round at Augusta*

It's official

ACORN have announced that their latest *project* is nearing completion. The results will have far reaching and significant consequences for all users of Acorn equipment well into the future.

The first opportunity for the public to see the results of this will be at the Harrogate Acorn User Show from 22nd-24th April. However, a first for Acorn is an invitation for a select number of Acorn enthusiasts to attend an exclusive preview and presentation of the project at Grid Reference TQ281811 on Saturday 16 April.

Entrance is by ticket only and only a limited number of tickets will be made available. You can get your ticket on a first come first served basis by calling the Acorn project hotline on 081-673 5455 during normal office hours.

If you can't make the preview or the show, make sure that you get the May issue of *Acorn Computing* for the full details.

Musically minded — on two fronts

TMJ have a new easy-to-use player for Desktop Tracker tunes based around an album-based approach to tunes. !Play supports interactive help and to load a tune file, drag it on to the Player window or to the iconbar icon. The Player comprises of a window showing the current tune, a tape counter/timer, two sets of buttons and a volume control.

The three icons underneath the timer and to the right of the tape-deck buttons control the order in which tunes are played. Selecting the *Loop* button causes a tune to repeat indefinitely.

Selecting *Next* will start the next tune in the album when the current one ends, while *Random* works similarly but selects a random tune each time.

You can create new albums of tunes by placing the tunes in a sub-directory and changing the definition of Album$Name in the !Run file appropriately.

Double-clicking over the new album should then install it into the Menu.

The complete play pack comes in four disks for 800k disk drives and two disks for 1.6k drives.

Each pack costs £20 (inc VAT) from TMJ Computer Software, 39a Station Rd, Desborough, Northants NN14 2RL.

Different Ideas Music (0568 613003) is about to launch a series of music albums for the Archimedes series. Using Desktop Tracker and a specially-written player, DIM's first offering, The Techno Experience, spans four compressed 800k floppies, and retails at £15 including VAT and postage.

A sampler disk can be obtained by writing to Different Ideas at Eyton House, Leominster, Herefordshire HR6 0AG. In addition, everyone who asks for a copy of the sampler disk could win an Econet sampler/MIDI interface.

For new Desktop Tracker users, DIM have the DTT Support pack, which comprises a four disk set containing extra samples, foundation drum tracks and high quality tracks, and a high pass audio filter by-pass upgrade, which improves the quality of the 32-bit Acorn's sound output.

DIM are also looking for musicians to write music for future albums, and also commission work for games. Anyone interested should send a floppy disk containing at least four contrasting tracks – preferably in Desktop Tracker format, though other programs can be used. Anyone writing music for DIM will receive a free copy of Desktop Tracker.

Speak for yourself

LCL (0491 579345) are following the success of Micro Spanish – with its real interactive speech – by converting all their other language courses so that they too will include real speech.

The updated version will replace the present ones and will cost the same, £24.99, though you can update any of the nine language courses for the Acorn machines for just £5.

Font update

LOOK Systems (0603 748253) have good news for people using their 100 Monotype Typefaces with Computer Concepts' Turbo Drivers and Laser Direct software.

Computer Concepts are looking into the possibility of an upgrade, but in the meantime, LOOK have improved the !Install application so that you can create Computer Concepts' compatible fonts.

The problem lies with the kerning pairs not being correctly decoded. This solution allows fonts to be created in a format which does not require the printer drivers to do any decoding.

LOOK have also improved the implementation of RISC OS 2 fonts and have extended the range of kerning pairs.

Portable support

ACORN are increasing their support for the A4. A one year warranty is now supplied free of charge with every A4.

In addition there is now a three year extended warranty including on-site and telephone hotline support from Granada Microcare for £149.95.

Powerful mover

ARM (Advanced RISC Machines) are taking over the old Acorn Computers building in Cambridge. So their address is now: ARM Ltd, Fulbourn Road, Cherry Hinton, Cambridge CB1 4JN. Tel: 0223 400400.

Battle fever

NEW software house Vision Software are about to launch their first program, Battleships. The game promises sampled sound, lots of options and a two player mode at a very reasonable price.

If you want to know more you can send for a demo disk to Vision Software, 271 Hainault Road, Leytonstone, London E11 1ES.

Moving out of the classroom and into the lab

CUMANA (0483 503121) have added another interactive CD-Rom to their list. This is the Chemistry Set and is a library and encyclopaedia of chemical experiments and molecular structures.

Designed for children aged 10 and above, the new disk focuses on Key Stages 3 and 4 of the New Attainment Target 3 as well as the biomolecular aspects of KS3 and 4 of NAT 2. It is also suitable for first year university work.

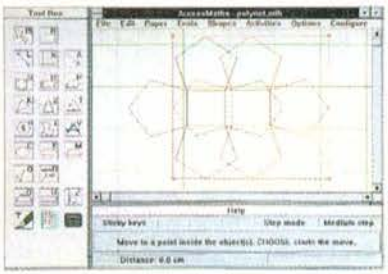
You'll find over 350 video sequences of key chemical experiments and processes which can be stopped, started and analysed frame by frame. Topics include periodicity and group properties, competition and replacement reactions, gas preparations and test and qualitative analysis.

In addition there is a 500 compound database including oxides and chlorides of all the elements, over 400 interactive 3D molecular structures and 1,000 text items covering history, uses, hazards, manufacture and properties of elements. There are also 500 photographs to illustrate this, all of which can be used in other applications.

The Chemistry Set was developed and published by New Media and costs £99.

Mathematical access

A NEW and powerful geometry and drawing program has been launched by the Ace Centre (081- 547 3418). Called AccessMaths it provides mainstream and special needs pupils with tools to explore a wide variety of concepts in Key Stages 2, 3 and 4.



There are three elements in the package – drawing tools, measuring tools and activities.

Lines, squares, circles, triangles, polygons and so on can be drawn easily and measured using the program's on-screen ruler, protracter and/or set square.

There is also an abacus and a number line to give younger pupils a friendly introduction. The cost is £30.

Polish exchange

NETHERHALL School in Cambridge have recently cemented the Polish connection. Last October two Polish professors and an executive from a computer company were struggling to explain to Polish teachers why computers have been so successful in UK schools. The solution was to demonstrate the work the classes were doing.

● *Netherhall students fly the flag*

The Polish Association of Maths Teachers and Acorn sponsored the exchange and four Polish students visited Netherhall School in January. The group followed the normal timetable and worked together on computer projects such as traffic management.

After a week of intense activity the Cambridge students returned to Poland with their visitors and the head of IT at Netherhall, Alastair Wells. There they participated in a teacher's conference in Poznan, demonstrating the work done in the UK.

They produced a newspaper and ran workshops demonstrating animation, video digitising, music composition, CD-Rom and multi-media authoring, as well as Kodak Photo CD, all on Acorn machines.

PC access

ALEPH ONE (0223 811679) have updated and lowered the price of their PC cards – £152 off present 486/4Mb prices to £535.

Their cards now come with 486SLC chips with clock speeds of 25Mhz or 50MHz, upgradeable SIMM memory through 2, 4, 8 or 16Mb, a local IDE hard-disk interface and a socket for a local floppy drive up to 1.44Mb.

Paperless books

GERMAN company Tools GmbH (010 49 228 985800) have produced PaperOut, a retrieval system for Electronic Books.

There are 200 CD-Rom titles, from encyclopaedias to guide books, which conform to the Electronic Book standard developed by Sony. PaperOut enables you to use these with a variety of computer systems – and this now includes the Acorn machines.

Working on any RISC OS 3 machine, PaperOut lets you display information as well as perform simple or complicated searches. You can even access the audio data and print the data you want or load it into other applications.

Designed to educate

OAK Solutions (0532 326992) and the National Association of Advisers and Inspectors in Design and Technology have produced The Design Processor. This presents pupils with a revolutionary integrated design environment and comprises three layers of entry.

At the first level is a suite of sophisticated CAD-type packages and related applications. The second level provides a large design and technology database which can be used to give information about components and processes. It also includes a range of predrawn files which can be loaded into an application.

The third layer of access consists of a database which includes components and design but also complete projects. These too are easily accessible.

At present The Design Processor covers a range of areas including Food, Electronics, Environments and Packaging and costs £99, including site licences for 13 applications, numerous resources and three years of updates.

PICK YOUR PLAYERS

ZOOM INTO A ZONE

GO FOR A GAME

FACE THE FINAL CHALLENGE

' The Crystal Maze is fantastic. The graphics and sound are stunning, the puzzles and games very playable and challenging.....'
Risc User, December 1993

' The Crystal Maze is a must for everyone from lovers of mind bending puzzles to joystick-frenzy enthusiasts '
Acorn Computing October 1993

THE CRYSTAL MAZE

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The Crystal Maze is a Chatsworth Television production for Channel 4 based on ideas by Jacques Antoine © 1990

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Wiltshire SN16 OLH
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Expanding arm

VLSI and ARM have renewed their technology alliance to expand the market opportunities for the ARM 32-bit RISC architecture in embedded control and portable applications.

Under the two year agreement VLSI will continue to manufacture, market and sell the ARM cores and derivative devices. This includes additions to the current ARM6 and ARM7 families as well as future implementation of the ARM8.

Some of the recent uses of the chips have been in the Apple Newton, 3DO Interactive Video System, direct broadcast satellite and consumer cable TV set-top boxes, LAN controllers and modem cards.

IT job club

CAMBRIDGE Regional College and Acorn Computers have run a multimedia training course specifically designed to equip long-term unemployed adults with up-to-the minute technology skills to assist them to return to work.

The initiative was financed with European funds and took place in March. Ten participants attended two two-day sessions learning about concepts and techniques.

From this they moved on to creating a design project and finished developing their own example multimedia applications.

Mike Platten, Enterprise and Training Schemes Manager for the College said, "This programme is full already and we hope to run it again in the future. Anyone who is interested should telephone John Jullien on 0223 881636."

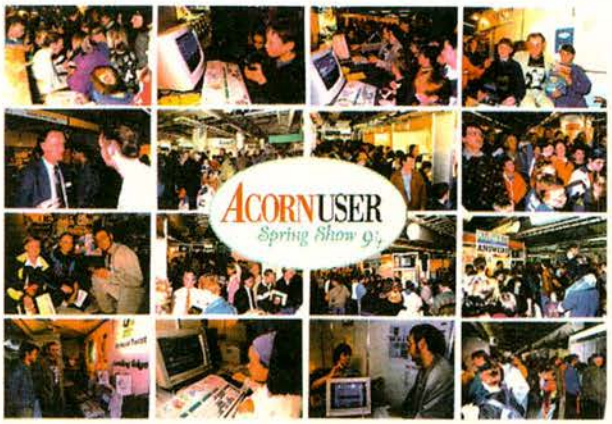
Desktop training

STOCKPORT-based Desktop Projects (061-474 0778) are venturing into the training market. They plan to hold regular weekend training courses on all aspects of Acorn computers and situated adjacent to the M63 they expect people from all over the North-west of England.

The first course will run on Sunday 17 April from 10am to 4pm with lunch, refreshments and all the computer hardware and software provided. There is an introductory price of £50 and further details can be obtained directly from Desktop Projects.

Harrogate — Acorn User Show '94

Hall C, International Conference and Exhibition Centre,
Harrogate, 22-24 April



THE spring Acorn showcase promises surprises and new releases on both hardware and software fronts. Software producers have now written the event into their schedules as can be seen by the array of titles due to be launched or previewed.

Gamesware (0703 456523) have a first with Simon the Sorcerer on CD-Rom, taking advantage of the size of a CD as opposed to nine disks for the floppy disk version.

This could be the beginning of a range of games on CD-Rom. You can also see glimpses of what is due later in the year: Dune 2, Striker, Global Effect, Daughters of Serpents and Rome AD.

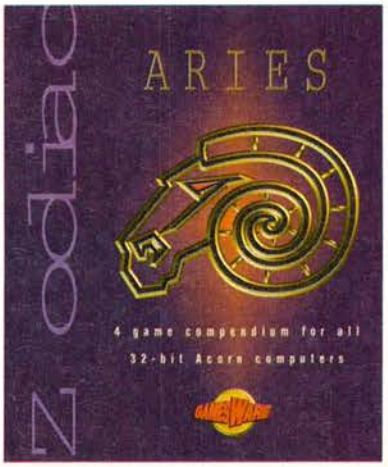
They have also been working on their existing product line with James Pond 2+, a new improved version of RoboCod with five new fun levels and tunes and an upgrade price of £7.99 for existing users.

A new range has been added to the Gamesware line-up – Zodiac. This will feature a compilation set of four games, each title depicting a sign of the Zodiac. The first release will be Aries in April. The price will be £29.99 and will be a mix of new and previously released games.

If you prefer a bit of joystick to keyboard bashing, take a look at the Power Stick which – like the Power Pad – simply plugs into the printer port and comes with a comprehensive suite of software to allow it to support the Acorn joystick standard. The price is £29.99.

DTP professionals and enthusiasts will be able to see Impression Publisher for the first time on the **Computer Concepts** (0442 63933) stand.

The top of the new Impression range, it offers all the advanced features of Style plus text flow around irregular shapes, control over page bleed, crop marks, separation names, registration marks, advanced colour support including the ability to handle colour separations and TIFF filters.



Impression II owners can upgrade at the show for just £29.

There will also be the chance to view MacFS, the new Mac disk reader/writer utility, as well as the recently launched JPEG and PhotoCD loaders. These loaders make it easier to load 24-bit graphics files on to the Acorn.

JPEG is the industry standard method of compressing 24-bit pictures with compression rates of up to 10:1. With these loaders Impression Style, Publisher and ArtWorks 1.5 owners can drop the files directly into their documents.

The PhotoCD loader works similarly and is suitable for any PhotoCD drive and opens up huge resources to Acorn owners. Both loaders are available on one disk and cost £39, which includes some sample JPEG files.

Colton Software (0223 311881) will be using the show to demonstrate how Fireworkz can swap files with users of the new Fireworkz for Windows.

In addition they are showing a new addition to the line, ClassCardz. These are educational support materials to help teachers introduce Wordz, Resultz and Fireworkz and use them across the curriculum. Class Cardz is free to schools buying site licenses.

You'll also be able to glimpse Recordz, the database of the Fireworkz family due for release later in the year.

If accounts are more your line, **Apricote Studios** (0354 680432) are launching Personal Accounts Version 3. As well as the usual features such as multiple bank accounts, analysis heading, standing orders, user-defined reports and on-line help, there are now a range of new features.

These include *drag and drop* so that anything in Personal Accounts can be dragged to any other RISC OS application. There is also a full undo and redo ➤

➤

function. You can even undo it to day one and then redo it to your last keypress.

All window positions, including their scroll bars, are now remembered and you have control over which windows will be automatically opened on loading a file; this all works on a 1Mb machine. There is also a relational aspect to this program. If you change an account name all other related fields are instantly updated.

Personal Accounts costs £49.95 (inc VAT) with a special show launch price of £39.95. There is also an upgrade path for existing users.

Stuart Halliday at **Quantum Software** (0506 411162) will be using the show to launch version 3 of his Keystroke utility which works with all RISC OS desktop programs such as Artworks, Impression Style and Publisher. He also plans to preview his sticky backdrop program, Blinds.

Oregan (021-353 6044) have a mix of leisure and application software to offer. Sally and Wally is an action-packed platform game featuring colourful cute graphics, while Magnetoids is a 3D version of Asteroids. This uses light source-shaded vector graphics and a special enhanced ARM 3 mode. Both games cost £24.95 each.

On the more serious side Oregan have been developing Photo-Touch, an image processing and electronic photo-touch-up package. It works with many image formats from 256 colour sprites right up to 24-bit Tiff and Clear files.

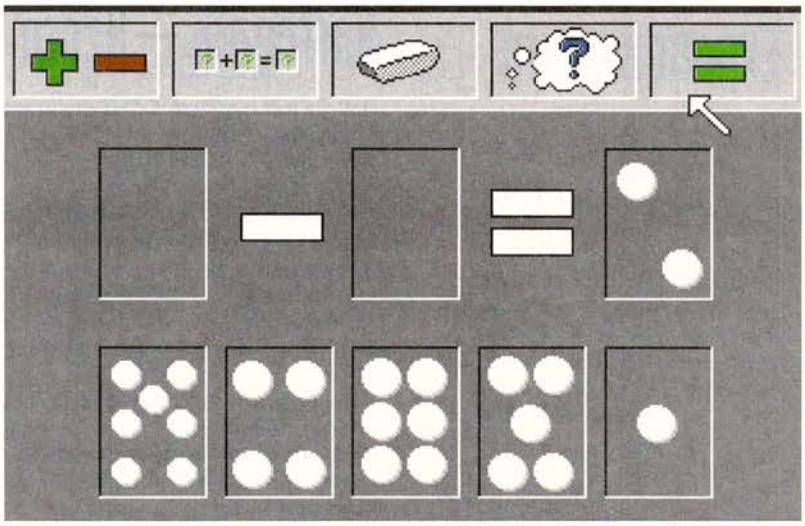
There are over 60 image processing facilities to choose from – swirl, mosaic, scratch and ripple to filters like emboss, average, strengthen and isolation. Colour histograms and full colour correction options are also available.

For touching up images you can access simple morphing, freehand and edge cut and paste options as well as many others. The launch price is set at £79.95.

Enhancing their previous image will be **Irlam** (0202 841234). They'll have a new manual for their Pro I-Mage colour scanning software with hints and tips as well as comprehensive instructions for all their scanner packages.

In addition there'll be the latest version of ImageBank 24 archive with drawfile support, faster JPEG decompression code and dithered 16-bit output for photographic quality in graphics enhancer screen modes.

Irlam will also be showing new software for their colour hand scanner and the image Stitching application which joins up large images which have been scanned in strips.



● *Number Tiles – practice made easy*

Topologika (0733 244682) will be launching two new educational titles at the show – Talking Rhymes and Number Tiles. The first is a pack of four nursery rhymes-cum-jigsaws which speak to you and are designed to help children read and play as they discover Humpty Dumpty, Little Miss Muffet, Little Jack Horner and Georgie Porgie. The cost is £40 or £12 if you want to buy the rhymes separately.

Number Tiles aims to let children practise addition, subtraction, multiplication and division at Key Stage 1. The price is £30.

Staying with education **Wyddfa** (0286 870101) will be revealing Talking Stories, their electronic story books using sampled sounds. There are four titles on view: Gwen's Nose, Gwen's Tummy, Gwen at the Fair and Gwen goes to School.

They are also running a competition for Welsh-speaking primary schools. They must create a booklet in Welsh with original text and graphics. The winning school will receive £100 of software and a talking version of their winning booklet. Every school that enters will get a free copy of a Talking Story in Welsh.

The Datafile (0934 823005) will be showing a range of new fonts designed by Tony Nash containing Abbey, Bede and El-Cid families. There will also be a font similar to the Italian draw font in the Medieval and Gothic pack.

This is a very decorative font and is still under development as we go to press. The price will be £40 for the pack but a special show price is promised of £32.

● *A Talking Story from Wyddfa*

● *Tony Nash fonts for Acorn users*

● *Talking Rhymes – read and play*

leading products from Digital Services

Squirrel 2 – the relational database

We believe this to be the finest database available for the RISC OS platform, and a match for many more expensive products on the PC and MAC.
Squirrel offers unprecedented ease of use, yet has awesome power. Tables can be created in minutes by novice users, whilst those experienced in its use never cease to be amazed by its depth of functionality.

Squirrel Single User	*£ 139.00*
Squirrel Multi User	*£ 556.00*
Squirrel 'C' Developers Toolkit	*£ 99.00*

Armlock – hard disk security system

Armlock is a software only utility preventing unauthorised access to CMOS RAM or to designated files/directories on the hard disk of any RISC OS 3 computer. Unlike other security systems, Armlock does not require the hard disk to be partitioned into read-only and writeable areas.

ARMLOCK

Armlock Single User	*£ 35.00*
Armlock Ten User Licence	*£ 139.00*

Netgain – high speed application loader

NETGAIN

Netgain is a real breakthrough in Econet technology which reduces the frustration of slow load times for applications.
With Netgain, applications installed on the network server are available to any Netgain configured client, who can load them at hard disk speed simply by clicking on the icon.
Compatible with Level 4 fileserver software.

Server Pack, including 10 user packs	*£ 200.00*
Additional 10 User Packs	*£ 100.00*

Waiter – The RISC OS menu system

Waiter is a complete menu-building system for risc os. Powerful, easy to use, hierarchical menus may be created, complete with icons and descriptions, enabling novice users to locate, run and move between programs. Passwords can be attached to applications or entire menus. The system is ideally suited for use with hard disks or networks.

Waiter Single User	*£ 35.00*
Waiter Site/Network Licence	*£ 139.00*

Netgain for Ethernet – high speed application loader

NETGAIN FOR ETHERNET

Netgain for Ethernet provides the fastest transfer rates of any network currently available on the RISC OS platform. Typical transfer rate from a standard Ethernet system is approximately 200K/sec but Netgain achieves up to 900K/sec. In addition to this transport throughput increase, intelligent caching and a general reduction in bottlenecks result in staggering reductions in load times for typical applications.
No more then 64k of RAM is taken from any workstation.

Server Pack, including 10 user packs	*£ 200.00*
Additional 10 User Packs	*£ 100.00*

Ethernet Cards – for high speed networking

Digital Services ethernet cards have been designed to provide maximum possible bandwidth on Acorn networks. Both thin ethernet (10 Base 2) and twisted pair (10 Base T) cards are available. The cards incorporate two unique features: the computer's CMOS RAM may be password protected, thus preventing unauthorised personnel from tampering with the configuration, and secondly the Netgain for Ethernet client software is included in the ROM.

Mini expansion card for A3000/3020/4000

£139.00

16 bit expansion card for A300/400/540/5000

£139.00

Digistore – tape streamer

Digistore is fast, flexible and TOTALLY reliable in operation. Friendly RISC OS software allows selective backup and restore. Backup commands may be included in your own programs.
Digistore can be connected to any RISC OS computer via a SCSI interface, and uses industry standard 1/4" tape cartridges.

250Mb £799.00 *525Mb £899.00* *1Gb £999.00*

All prices shown are ex-VAT, which is chargeable at 17.5% on all items for UK residents. No VAT is due on foreign orders.
An extra charge will be made for postage and packing on all items ordered from Digital Services.

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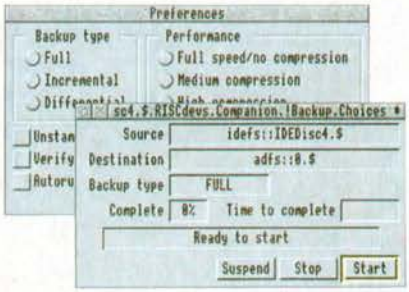
9 Wayte Street, Cosham, Portsmouth
Hampshire PO6 3BS Tel 0705 210600

Latest RISC developments.

HARD DISC COMPANION

NEW IMPROVED RESTORE FACILITY



Hard Disc Companion is the complete backup utility providing excellent security for your valuable data.
It provides a structured approach to the backing up of hard drives to floppy discs, and the recovery of files after disc failure or accidental file deletion. Both Full and Incremental backups are supported, and the files to be backed-up or ignored are chosen using simple drag operations. The entire backup specification may be saved in a script file for use at a later date. A compression system ensures that the data is backed up quickly and efficiently.

New features in version 2.50 include:

- Improved restore facilities using standard directory displays
- Support for removable drives
- Up to 30% speed increase (media dependent)
- Incorporates 3D-style throughout

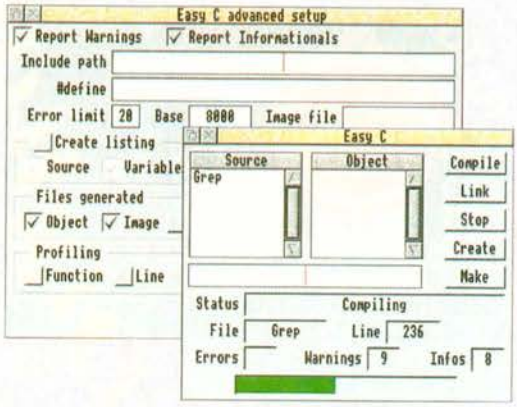
PRICE £45 + £1.70 carriage

HOW TO UPGRADE

Hard Disc Companion II users may upgrade to the latest version by returning original disc with payment of £5 + £1.70 carriage.
Hard Disc Companion I users should return disc with payment of £15 + £1.70 carriage.

EASY C

NOW WITH SOURCE LEVEL DEBUGGER



Easy C is a full C development system using a WIMP front-end to drive the compiler and linker. No complicated command-line sequences need to be learnt - C programs may be compiled, linked and run using one single mouse click. It is ideal for beginners, but the full ANSI compiler (not validated) allows it to handle substantial programs.

- Easy-to-use WIMP front-end
- ANSI C compiler generates fast ARM code
- Object code linker for linking programs
- Automatic generation of Make files
- Supports all standard ANSI functions
- Library of basic RISC OS functions
- Integrated ARM assembler
- Facility to create and maintain libraries
- Integrates with editors using 'Throwback'
- FreeWare WIMP library DeskLib supplied

Now supplied with a superb debugger providing source/object level debugging, source and output windows, stack trace, breakpoints, conditional breakpoints, single stepping, variable monitoring, simple profiling and lots more.

Easy C is supplied with a comprehensive user guide including a C tutorial for beginners and a description of all functions provided.

PRICE £59 + £2.70 carriage

HOW TO UPGRADE

Easy C users may obtain the debugger by returning original program disc with payment of £10 + £1.70 carriage.
User of the original C Development System may upgrade to the latest version of Easy C by returning original program disc with payment of £15 + £2.70 carriage.

HEARSAY

IMPROVED USER INTERFACE

Hearsay is the most powerful general purpose communications package available on Acorn systems.
This superb package is packed with powerful features, yet remains both easy-to-learn and intuitive to use. Now the latest version (2.18) has been further enhanced with an improved user interface and 3D-style throughout.

- VT320, VT102, VT52, ANSI terminals
- Campus 2000, Viewdata, Minitel
- Tektronix 4107 graphics terminal
- Xmodem, Ymodem, Zmodem, Kermit, SEALink background file transfers
- Powerful script language
- Supports RISC OS printer drivers
- Number directory with auto logon
- Call logging
- Macro processor & definable keyboard
- Supports most popular modems

PRICE £75 + £2.70 carriage

HOW TO UPGRADE

Hearsay II users may upgrade to the latest version free-of-charge by returning original program disc with an SAE.
Hearsay I users should return disc with payment of £35 + £2.70 carriage.

RISC developments

RISC Developments Limited
117 Hatfield Road, St. Albans, Herts AL1 4JS Tel. (0727) 843600 Fax. (0727) 860263

Please add VAT to all prices. Please phone for site licence & educational prices.

Control! The complete solution?

Rog Frost assesses the latest in control software

PRODUCT SPOTLIGHT

Product: Complete Control
Price: £39.95
Supplier: Cambridgeshire Software House, The Computer Centre, 8 Bramley Road, St Ives, Cambridgeshire PE17 4WS.
Tel: 0480 467945

I FIRST saw Complete Control at the World of Acorn show back in October. My eyes lit on it, for this program seemed to offer me just what I wanted for my year nine technology groups, who were working on a theme of fairgrounds.

They compose music, create graphics and produce their own controllable fairground models. CSH seemed to have the ideal program to make this work more manageable for youngsters and teachers alike.

You'll probably gather that Complete Control is designed to be *the* control program in schools. It can work with a variety of interfaces, including those from Lego, Phobox and Deltronics (which I use). This means that up to eight devices can be switched on and off by the computer.

This can be set up so that up to four motors can be made to go forwards or backwards. In addition, up to eight input devices can be used. These sense changes in the environment such as pressure, temperature or light.

The computer can be made to respond to these changes. If required, four of these inputs can be analogue, with a range of values, rather than just being on or off digital values.

As well as external devices, the program can also control graphics in the form of !Draw files, music in the form of trackers and sound samples which have been stored as modules.

These are all standard formats and those people who do not have the means to create their own samples or music should have little difficulty in finding them, ready produced, in the public domain.

Users who are familiar with one control program will have no difficulty getting devices to work with Complete Control. The language it uses, such as *OUTPUT 1 ON*, is close to normal English, although, inevitably, there are peculiarities. My year nine pupils certainly found this pack no harder to manage than any other. Some aspects are easy.

There is a very good editor built into the program. This recognises known keywords as they are entered and highlights them. I like the auto indentation offered for loops within programs.

Saving a program is very easy and because it saves as a textfile it is very easy to obtain a print out of the program. This is particularly important in the days of the National Curriculum.

There are some minus points though. Complete Control is not Logo-like in its way of operation. It is not possible to build your own command words and use them as part of a lengthy program.

Instead, CSH offer a more Basic-like structure. Procedures can be defined and then called. It is a different approach, probably nearer to the real world of programming, but some of my less able youngsters found the concepts involved quite difficult.

Another way round the problem is to set up tags. This means that the word delay can be used instead of *WAIT TIME 2 SECONDS*.

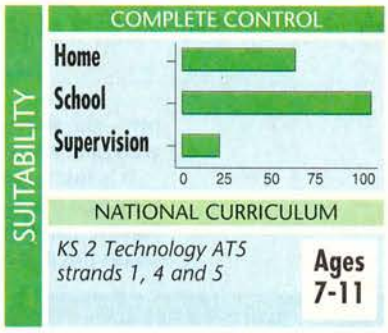
A particular problem is the lack of a power command. Models had to be constructed with gearing to make them run at a suitable speed. It's a pity that the power of the computer can't be used to save on this task.

I also had some problems getting music organised. This seemed to be due to a lack of a music-playing module within Complete Control. I was able to solve this problem but it could be serious for some users.

I was pleased with the results produced by the program. My youngsters were able to combine the various aspects together to produce simple animations on screen, suitable fairground sound bites and music, along with a controlled model.

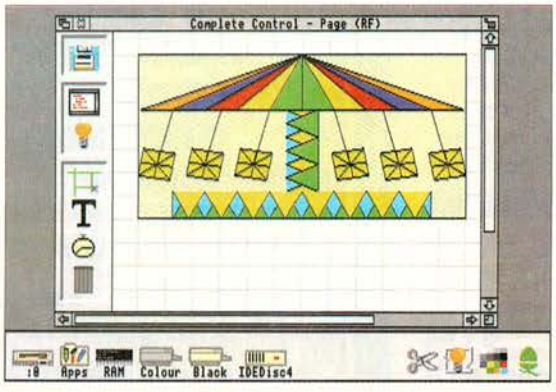
The models were able to respond to inputs from sensors so that, for example, a roundabout could do 20 revolutions and then stop.

A handbook comes with the program. It is not the best I've ever read, failing to list all of the commands (the on-screen help is better for this) but it does have excellent advice on control technology in general and a huge list of potential projects. Many example projects are included on the disk.

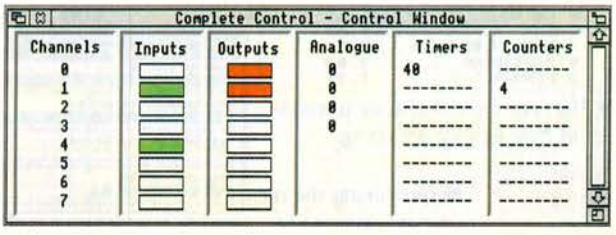


Summing up

Overall, Complete Control is a first rate pack. Its ability to control the screen and sound outputs of the computer make it a worthwhile tool, even without a control interface. Definitely worth a site licence – as long as CSH can iron out the niggles.



● *The page window. Graphics and simple animations can be controlled here*



● *The control window shows the status of all inputs and outputs*

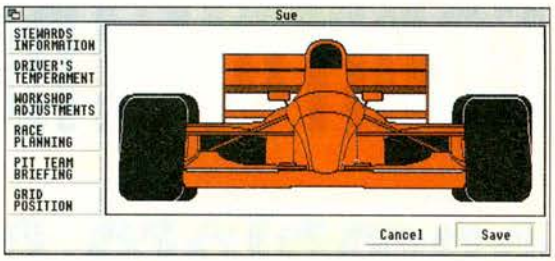
Formula One Mathematics

Find out with Rog Frost if a new program for key stages two and above is worthy of the Grand Prix

IT IS one of the oddities of computers in schools that it is hard to come across good, innovative pieces of software which really motivate mathematics students. Cambridgeshire Software House are attempting to deal with this problem with Cars.

Let's get the sexism bit out of the way first. The program is about the male-dominated sport of formula one motor racing. It is not, though, about the drivers themselves. It is much more about the unsung heroes in the pits – the strategists and engineers who plan races and set up the cars.

It is just possible that some girls may find it inappropriate for them. Having said that, the initial set up of teams has a mix of male and female names. The digitized picture of a racing car included in the resources has a very female-looking driver inside. CSH have done their best to make this topic – a captivating one for both sexes.



● *The team's main menu gives access to all areas of race planning*

The basic activities which youngsters need to be involved in are setting up the car and planning racing speeds. Essentially, setting up the car involves tuning the engine and deciding between good performances on straights or bends, adjusting the wings to alter the grip the car has on the road, changing the harness of the suspension according to the smoothness of the track and altering gear ratios which can give high top speeds or rapid acceleration.

This phase can be made much more complex. Weather can be created by the program supervisor. This will mean that care will be needed in selecting tyres and in assessing when to make pit stops for tyre changes. Also, and contrary to Formula One rules, fuel stops can be made.

This *error* is a deliberate ploy since it creates more opportunities for mathematics. Pit stop times can be entered. This could be a notional time or, sensibly, it could be based on a real task which the team has to carry out. The driver's skill and temperament can be set as well. However, I'm not sure what difference these aspects make when racing.

Having set the car up, it is time to consider the race planning. Each circuit is divided up into a number of features. These features are long, medium or short straights plus tight, medium or long bends.

While reviewing the program, I worked on the fairly simple Monza circuit which has 15 features. There are well over 20 possible circuits, with the option for self design as well.

Each circuit is visible in a number of forms. For the ultimate in maths, the circuit maps are ideal. These can be used along with protractor, ruler and string so that racing teams can categorize features for themselves.

Alternatively, the supervisor could print off a table which lists the features of the course. For the limited review period I did this, but for classroom learning, using the plans has much to commend it.

The plans give safe maximum speeds for cars which are 100 per cent good at the various features. In setting up the car, compromises have to be made and the car won't be perfect. Calculations need to be done to work out realistic safe speeds. These are entered, on screen, into a table and when it is complete a practice lap is undertaken.

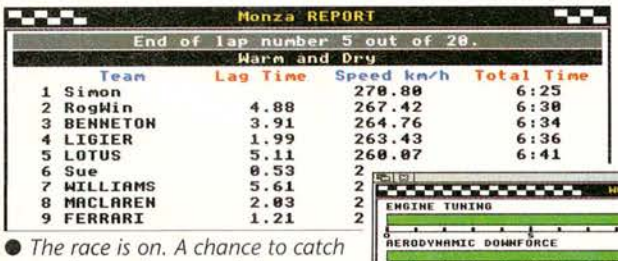
This is a non-graphical and non-driving experience. Instead, a full report of what happened is returned to the pits so that adjustments can be made. Users must remember to save their alterations. It is an easy process, but easily forgotten as well.

With practice, your car will be about right. All you need are some opponents. If you are lucky enough to have a room full of computers, a class full of youngsters can be practising and their team files can be merged for the big race.

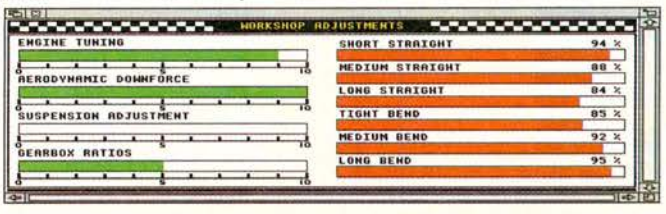
I found it a good idea to set up a number of teams with names like Williams and Ligier to provide users with steady, uninspiring competition.

PRODUCT SPOTLIGHT

Product: Cars – Maths in Motion
Price: £49.95
Supplier: Cambridgeshire Software House, The Computer Centre, 8 Bramley Road, St Ives, Cambridgeshire PE17 4WS.
Tel: 0480 467945


Monza REPORT
End of lap number 5 out of 20.
Warm and Dry
Team Lag Time Speed km/h Total Time
1 Simon 270.80 6:25
2 RogWin 4.88 267.42 6:30
3 BENNETON 3.91 264.76 6:34
4 LIGIER 1.99 263.43 6:36
5 LOTUS 5.11 260.07 6:41
6 Sue 0.53 2
7 WILLIAMS 5.61 2
8 MACLAREN 2.03 2
9 FERRARI 1.21 2

● *The race is on. A chance to catch up on how well we are doing*



● *Fine tuning the car to get the best out of it*

Summing up

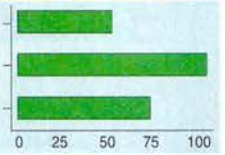
The program provides excellent reporting facilities. Grid positions, race reports, circuit details and so on can all be saved as textfiles and used as a basis for DTP work.

Some superb drawfiles – cars, helmets, trophies and circuits, among others – are included to enhance DTP work. Other resources include worksheets for teachers and fun items such as anagrams of drivers and word searches.

This software is brilliant. It puts maths into a real situation which many youngsters find interesting and challenging. A must for all primary and secondary schools.

SUITABILITY

CARS – MATHS IN MOTION



NATIONAL CURRICULUM

Maths at KS 2, 3 and 4/Technology at KS 2, 3 and 4/Science Art English

Ages 7-12

Doyouthinkysaurus?

Geoff Love goes on a Dinosaur Discovery

ADVENTURE games have always held a special appeal to children and no doubt this will again be the case with this latest offering from 4Mation.

In Dinosaur Discovery you take the role of assistant to a recently deceased professor. His lifelong quest to incubate a dinosaur egg was cut short prematurely when – just as he was rattling on the doors of success – he met a sticky end in the desert.

Clutching the professor's diary detailing his final activities, your task is to fulfil his life's ambition by hatching your very own baby brontosaurus.

The program comes on two disks which may be installed on to a hard disk. This is highly recommended, because when running from floppies I found some children got frustrated waiting for the new scene to load each time they moved.

Unfortunately, installing the software on hard disk could be confusing to some users since both disks contain an 'identical' !Dinosaur application. Both need to be dragged to the same directory to install the software, but no instructions are given to explain this. A simple installer program could be included to take care of this.

The operating manual is minimal, which says a lot for the design of the software. It is totally mouse-driven and very easy to use. You must read, or be read, the professor's diary before beginning your quest in a shed. Here, six objects adorn a table – your job is to choose which to take with you. No, of course you can't take them all.

Clicking on an object picks it up and the objects you are holding are displayed on screen. Before leaving the shed you are required to solve a wordsearch puzzle. Once out in the open an incomplete map appears showing your location. Click on your next destination and away you go. The map gradually grows as you chart undiscovered lands.

Various word puzzles have to be solved en route. These are fine, but every time a location is re-visited the same puzzle has to be solved again. To be fair, the contents do vary a little, but on three visits during a single quest I had to solve the same anagram three times. This can become frustrating – it would have been easy to include a greater variation here.

Take heed of the books in the museum and of the professor's diary and you might avoid my embarrassing situation – exploding crystals which dumped me back at the beginning of the adventure. Time to start again, and herein lies a problem.

You can save your position at any time during the game – often a good plan if you're about to attempt something which may be life-threatening, but it cannot be done easily.

It was certainly beyond the year three children I tried it with. The result was that after an hour-and-a-half of exploring, they put a sail wrong in the Stegosaurus Straits, got swept on to submerged shingle and sank.

Now I know this is all part of the fun but a simpler save button could have avoided them having to repeat the whole adventure. It's a sad fact that there is currently so much pressure on time in classrooms that unplanned shipwrecks are out.

Graphically, Dinosaur Discovery is very good. There's nothing quite like the feeling when you finally see your first baby brontosaurus hatch. The curriculum ideas and strategies for teachers using the software are also very useful.

The idea of children having to use information from different sources is commendable, although my year three children didn't find the writing in the professor's diary very easy to read – as a result they didn't refer to it as much as they should.

Summing up

A stimulating package which, with a few of the creases ironed out – added variety in the word puzzles and a simple save game button – has lots of potential for classroom use at lower Key Stage two.

Despite the niggles I still love it. Baby brontosaurus's are extremely cute and I want one.

PRODUCT SPOTLIGHT

Product: Dinosaur Discovery
Price: £27.50
Supplier: 4Mation, 14 Castle Park Road, Whaddon Valley, Barnstaple, Devon EX32 8PA.
Tel: 0271 25353

Geoff Love is an ex-advisory teacher for Information Technology who now teaches in a Gateshead primary school. He wrote the NW Semerc book, the Acorn Companion, and has authored education software for several Acorn software houses.

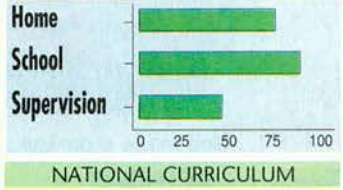
● *Important information is to be found in the museum*

● *The map reveals itself the more you explore*

● *Your starting point – choose your tools carefully*

SUITABILITY

DINOSAUR DISCOVERY



NATIONAL CURRICULUM

KS 1 and 2
History/English

Ages 6-10

Read all about it

Graham Keeling learns to read with the Oxford Reading Tree and Sherston

AFTER Sherston launched Naughty Stories – the first of their talking books in 1993 – it soon became obvious that they were on to a winner.

Now used in thousands of schools, Naughty Stories were a real breakthrough, bringing charming animated illustrations and well enunciated speech to the computer.

Overnight Billy the Bully and Edwina's Elephant became firm favourites in our schools. Children could share books in a way that had never been possible before.

Naughty Stories 2 followed but I felt there was something missing from a few of these later titles. The really good ideas for a simple story line had been used. Sherston had a superb concept but needed help – a partner to bring the expertise of a traditional children's reading scheme. Enter the Oxford Reading Tree Stage 2.

The combination of Roderick Hunt's text and Alex Brychta's illustrations were just what was needed. Sherston have worked hard to develop the software and I noticed a considerable improvement in the speed of loading pages from floppy disk.

These new Oxford Reading Tree Talking Stories feature the voice of actress Hannah Gordon, with each disk telling a complete story. The pages are laid out exactly as those in the Reading Tree books, with the computer adding sound effects and subtle animation.

The animation is less obvious than with Naughty Stories and will lead to far more discussion around the computer screen. The next door neighbour stars in some of the books, just peeping over the fence when the family least want him to see what they are up to.

● *Sometimes things can get out of hand*

Now he can be seen popping up and reacting to their antics in a manner impossible in any other media, apart from full blown TV or cinema animation.

The stories can be heard as a whole or by each page. Single words can be clicked and heard and a *log* kept of words chosen for the teacher to study later.

This could be of use to a teacher of children who are beginning to use the software independently, so that a track can be kept of words they want to hear again.

A new feature with this series is the addition of *key* words. These appear at the end of the story, just one huge word on the screen. The word is highlighted on the page to show its context in the story. This is a true innovation as the traditional reading books have no such addition.

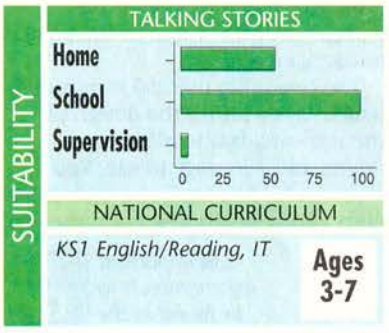
The package comes as a set of six disks, complete with a book of teacher's notes written by Jane Medwell. These include useful tips, from how to use the software within an overall approach to teaching reading, to managing the computer and also hints on assessment.

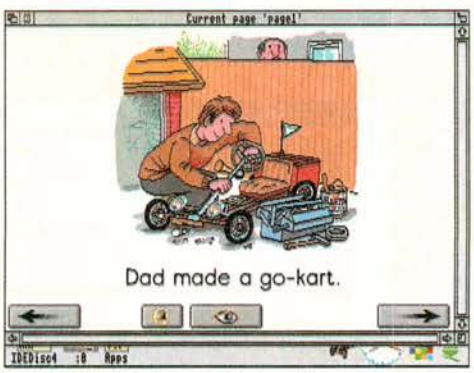
Summing up

Sherston have collaborated with Oxford University Press to produce an excellent aid to the teaching of reading. Children and teachers alike are going to love these stories, as the software actually adds to the written stories in a way that all children will enjoy. They are easy to use and will give hours of pleasure as well as assisting children with their early reading skills.

PRODUCT SPOTLIGHT

Product: Oxford ReadingTree – Talking Stories
Price: £39.95
Supplier: Sherston Software, Swan Barton, Sherston, Malmesbury, Wilts SN16 0LH
Tel: 0666 840433





● *Dad's efforts are watched by his neighbour*

● *Dreams can be about anything*

● *The toy's party needed a cake*

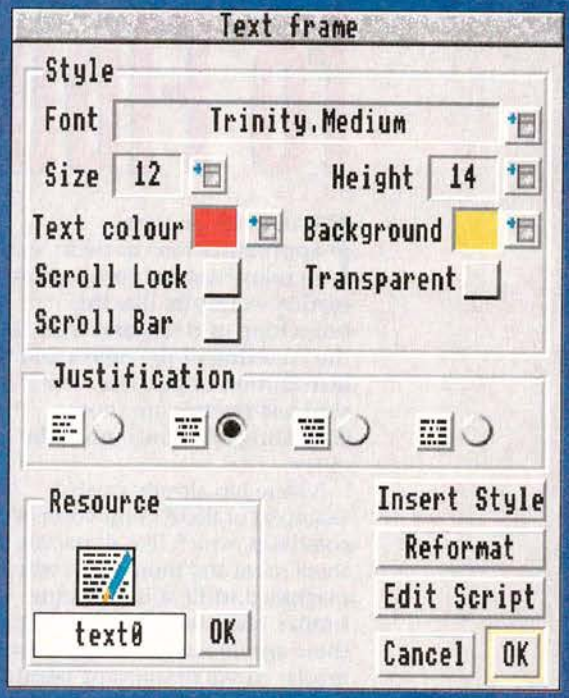
genesis™

the future of multimedia

Genesis, which for many years has been the leading multimedia authoring package on the Archimedes, has taken a large step forwards with the announcement of two new versions: Genesis Project and Genesis Professional. Both new versions include a completely revised user interface designed to be both easy to master for the novice user, yet quick and powerful for the Genesis expert.

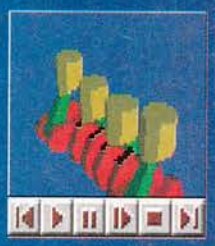
The Genesis menu structure has been simplified by using dialogue boxes to alter the style of frames and pages. Application creation and editing has been eased by the introduction of 'Object Linking and Embedding'. 'OLE' allows data to be transferred quickly and smoothly between Genesis and editors such as Draw, Euclid and Artworks.

Genesis now supports Artworks, Replay, Windows .BMP and .WAV files. Control buttons can be added automatically to Euclid, Film, Replay and Sound frames. It now incorporates a 24 bit colour model and can handle the new 15 and 24 bit Sprites. A turbo loading system significantly increases the speed at which pages open.



genesis Project

Genesis Project is the replacement for Genesis Plus. It is aimed at the user who wishes to create multimedia applications in a simple straightforward manner by clicking and dragging with the mouse. New features include 3D frame borders and automatic frame snap. Users of Genesis and Genesis Plus will appreciate the ease with which applications can now be created and the extra facilities that the new user interface brings.



genesis Professional

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Genesis Professional (Site)	£480
Upgrade Genesis/G+ to Genesis Project	£35
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OAK SOLUTIONS

From Snowflakes to Flowsnakes

Fractals within fractals produced by Jim Paterson

FRACTALS, or close approximations to them, exist in many natural forms, from earthly examples like the branching of rivers and trees to the cratering of the moon and the distribution of galaxies. The simplest fractals are those consisting of a continuous flat curve.

Nature has already created examples of these in the form of coastlines, which like all fractals show more and more detail when magnified while still appearing similar. Man has tamed some of these unruly natural forms, creating regular curves of stunning beauty and symmetry. Such fractals are well suited to computer computation and easily viewed on screens and printouts.

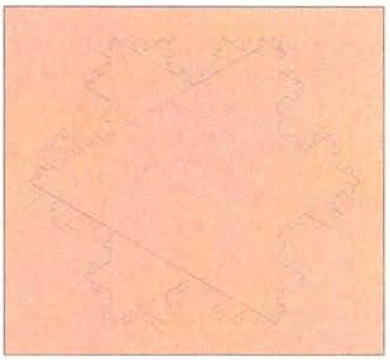
One of the earliest fractals to be created by man (the Swedish mathematician Helge von Koch) was the Snowflake curve. To construct it you start with an equilateral triangle. On the middle third of each side a smaller triangle is fitted. This procedure is repeated indefinitely, and the perimeter of the resulting figure is known as the Snowflake curve because of its hexagonal symmetry.

In practice the procedure need only be carried out a small number of times until the additions quickly become too small to be seen. Several stages in building this curve can be seen in Figure I.

A more recent fractal was discovered by William Gosper, who is also known for his discovery of the Glider Gun configuration in *Life*. In a spirit of gentle wordplay, Gosper called his fractal the *Flowsnake* because of the way it seems to flow in and out of itself.

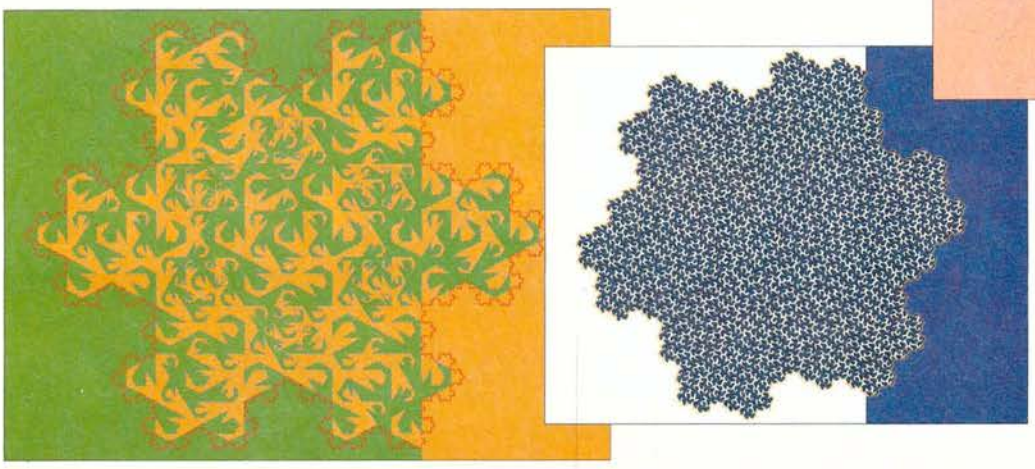
One way to illustrate how this curve is built up is to start with a single hexagon with one of its diagonals drawn splitting the shape into two unequal parts. This initial hexagon is replaced by seven smaller hexagons, again with a similar diagonal drawn but in such a way as to maintain a continuous curve from beginning to end. This procedure is then continued a number of times as shown in Figure II.

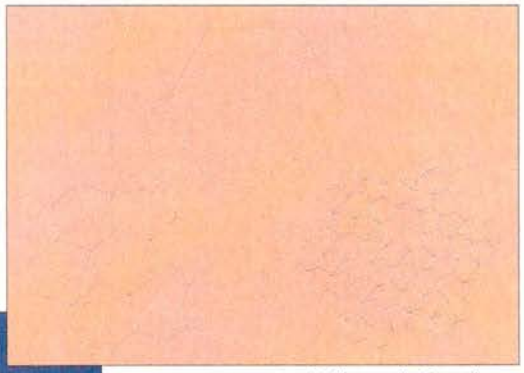
While still a fractal, this curve is quite different from the Snowflake curve because repeating the procedure indefinitely fills out an entire area. Curves with this property are known as *Peano* curves after the Italian mathematician, Guiseppe Peano. Mandlebrot would later say that they have fractal dimension two.



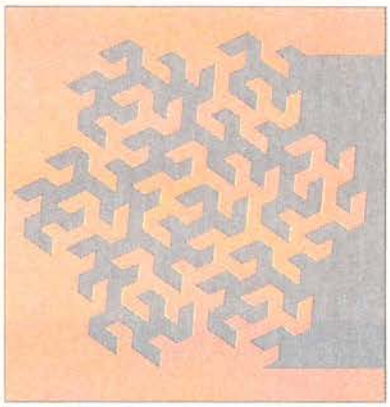
● *Figure I: Building the Snowflake curve*

If we repeat the procedure too far the lines become just a blur. However, the beauty of Peano curves can be enhanced by shading each side of the curve in contrasting colours such as black





● *Figure II: Creating a Flowsnake*



● *Figure III: Shading Peano curves*

and white, see Figure III.

The area which is gradually filled by the Flowsnake curve has a crinkly border which is also a fractal and its growth can be seen more easily by ignoring the diagonals in the above construction and concentrating on successively replacing hexagons by a group of seven hexagons of the correct size.

The resulting fractal perimeter has the unusual property that seven such curves can fit together to form a larger copy of the original as you can see in Figure IV. It is vaguely similar in shape to France whose shape is sometimes referred to as *the hexagon*.

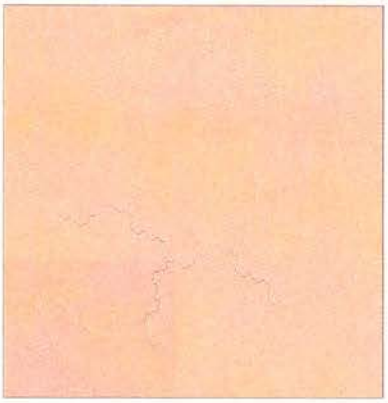
The French mathematician Benoit Mandelbrot, who coined the term fractal, notes that although squares or equilateral triangles can be fitted together to make a larger copy of themselves, it has irritated some writers that this is not possible with the regular hexagon. However this strange hexagon does satisfy this property.

In the same way that the Flowsnake fills an area bordered by the strange hexagon, Mandelbrot has managed to create a Peano curve that completely fills the area inside the original Snowflake curve itself. This needs a more complicated procedure which replaces each line by 13 line segments as seen at the top of Figure V.

This may look like nine line segments but in fact four of these are split into two halves each, making 13 in all. This process can be repeated – see the bottom of Figure V for the second stage with added shading. This curve also differs from the others mentioned in that not all the lines at any stage are the same length.

A design combining the Snowflake curve and Mandelbrot's interior fractal was used to illustrate the cover of Scientific American magazine in April 1978. It was

● *Figure IV: Seven into one*



through his Mathematical Games column in this magazine that Martin Gardner has popularised many topics such as fractals.

Most of these articles have been reprinted and augmented in Gardner's series of books on Mathematical Recreations. In particular the 13th and 14th such books *Penrose Tiles to Trapdoor Ciphers* and *Fractal Music, Hypercards and More...* contain chapters about these particular fractals and others.

Control panel

The Snowflow program is designed to show off these fractals. Selections are made from a Control Panel where the mouse is used to switch buttons on.

The first selection is to choose between the Snowflake or the Flowsnake-based curves. The second row allows a choice of display Mode 12 or 20 (for those with multisync monitors). The next two rows allow selection of the Background colour and a foreground fill colour. Only the first of three curves is filled.

These three curves are defined next, although the second and third curves can be switched off if only one is required. Each curve can be either the outline perimeter fractal, or the interior Peano curve. It can be drawn in any of eight possible colours and to any depth from zero to five.

The only problem you may detect is that the Mandelbrot fractal quickly becomes very dense with the result that it cannot be filled properly at a depth of three or more.

More than half of the program is concerned with the Control Panel, drawing the buttons, and detecting and applying the various mouse clicks. The fractal drawing part of the program is quite straightforward, using a recursive procedure which is repeated until the desired depth is reached.

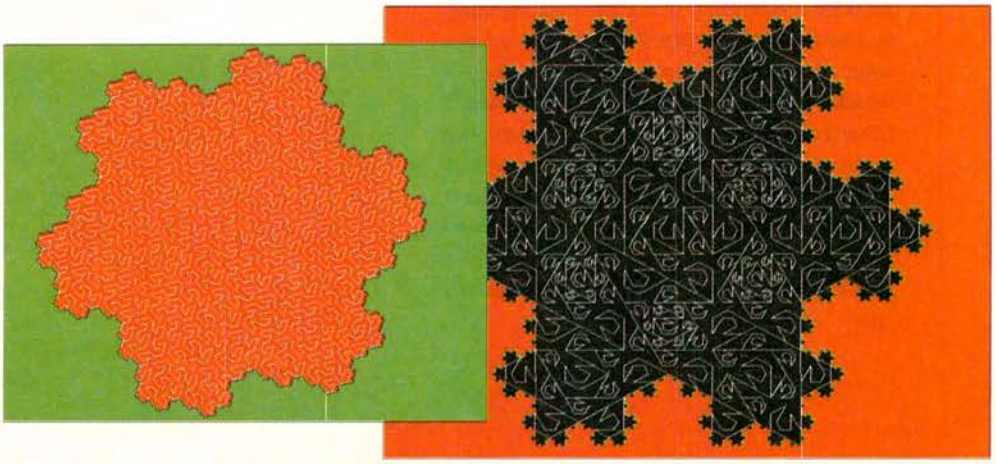
First of all a seed or starting position is set up appropriate to the chosen curve. This is a triangle for the outline Snowflake, or a hexagon for the outline of the Flowsnake. The interior Peano curves begin with a single line with two endpoints.

For each fractal there is an appropriate generator. These are initialised in an array by PROCdata. At each step in the iteration, each line segment is replaced by a copy of the generator in the correct orientation and position. This procedure is done by PROCrecurse.

Rather than wait until it has expanded the entire curve before drawing, it economises on memory by only expanding a section of the curve at a time, drawing as it goes.

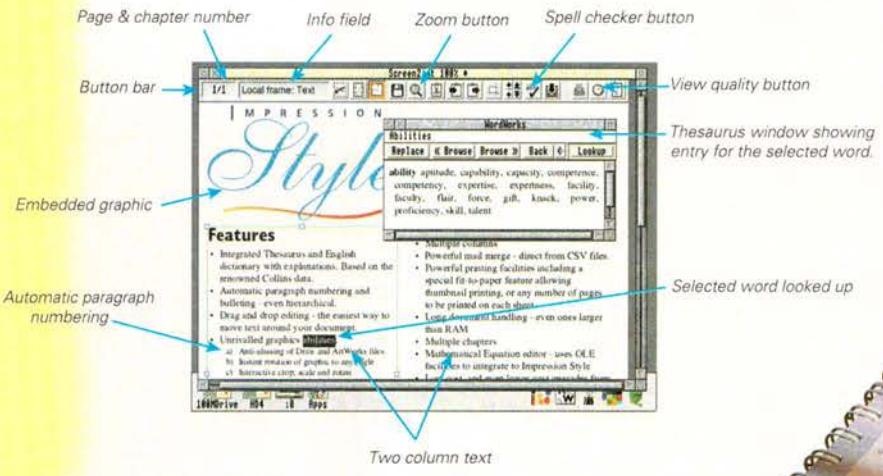
Have fun experimenting with different combinations of these curves. The more adventurous may wish to try altering the generator co-ordinates in order to produce an endless variety of line fractals.

● *Figure V: One into thirteen goes too*



IMPRESSION Style

Impression Style is the newest word processor member of the Impression family, and the most comprehensive and powerful version so far released. Over the last few years Impression has become the most successful 32-bit Acorn software application and while Impression's DTP capabilities have been renowned, the fact is that most users use it as their day to day word processor. Impression Style is a major update, with special attention paid towards improving the word processing abilities still further, and making it even easier to use than before. So, for example, it now includes automatic paragraph numbering and



two sorts of on-line help amongst dozens of other improvements.

For those with technical writing needs it includes a mathematical equation editing utility and table building utility. For writers it includes what Archimedes World called "the superb WordWorks dictionary and thesaurus package." Other features that help make Impression Style a better text processor include automatic abbreviation expansion - one of the greatest time saving features available, drag and drop editing, an optional, configurable tool bar, along with firm favourites such as spell check as you type.

In a *modern* world of computer software we have *created* a package to leave you with a lasting *impression*

Archimedes World summed it up by calling it "a document processor of immeasurable power and sophistication."

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"Importing foreign formats is one thing Style handles better than any other package I have encountered."

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Talking to one another

Keith Butcher examines the practicalities of peer-to-peer networking in school

HARD disks have been appearing in primary schools in my authority over the past year, many courtesy of the Tesco scheme. This has demonstrated to teachers something that many of us knew already – a hard disk is about the most useful upgrade you can make to a computer.

So now they all want hard disks, but is adding a hard disk to every A3000 the best way? Before embarking on an expensive upgrade programme, I decided to look into the possibility of networking in a primary school.

Why network?

For primary IT co-ordinators it can be a time-consuming job maintaining a number of machines around the school. It is more efficient to manage one machine and allow others to share it.

It also opens up a wealth of curriculum opportunities when data can be shared or passed from class to class. Resource sharing, such as colour printers, CD-Rom, scanners and so on also becomes a possibility. It might even be cheaper.

Primary schools were also interested in sharing the benefits of easy access to programs and resources such as !Fonts in order to save space and time.

The network can be thought of as two parts, the physical interfaces and cabling, and the software that manages the access. On the cabling side there were two alternatives available, either connecting the computers to a single cable that passes through the school, or a *star* system, with each computer connected to a dedicated central hard disk by its own individual cable.

Each system has its strengths and weaknesses. The first allows you to put a large number of sockets around the school that can be used just like an electric socket. However any damage to the cable stops the entire network.

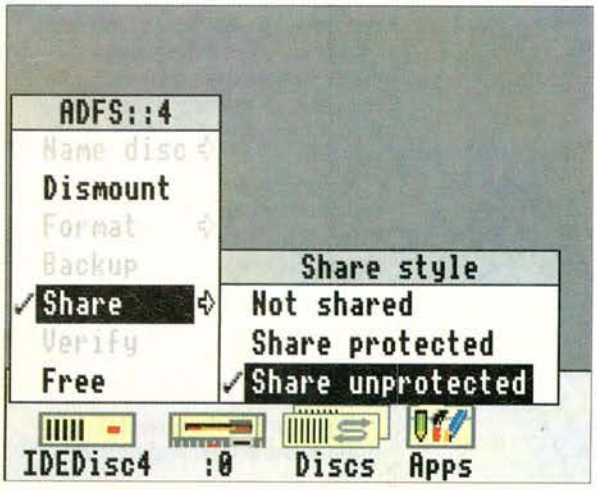
Star-based systems are more restrictive, in that each cable ends in a single socket. However, any cable damage only affects one computer. The consensus was for the first solution, allowing the sharing of a hard disk inside a computer that could also be used as a workstation.

This was important as teachers were concerned that they would have to provide a file server, either a computer with a hard disk or a dedicated unit. In their view the computer was sitting there doing nothing – an expense they found hard to justify.

Acorn's only software at the time was the Level 4 file server. This was of little use as it was designed to manage the children's work files, not to deliver programs.

There were a few other products available, but all of them relied on using a read-only partition of the hard disk. The theory sounds fine – put it where the children can't delete it. In practice, schools I have seen working with a protection system found it frustrating as it changed the start-up options of software.

These options are written back to disk and cannot be kept in a read-only area. Thus, the protection



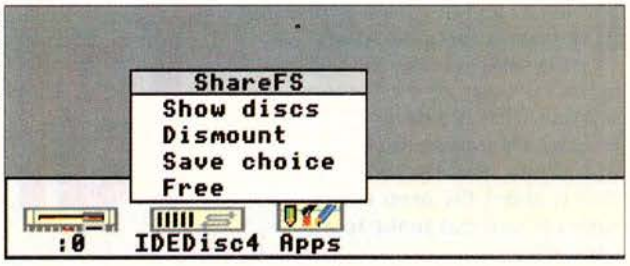
● *Access allows one hard disk to be shared with others on the network*

PRODUCT SPOTLIGHT

Product: Acorn Access
Price: £149
Supplier: Acorn Computers, Vision Park, Histon, Cambridge CB4 4AE.
Tel: 0223 254254
Requirement: RISC OS 3.1 with 2Mb ram

➤

Keith Butcher has been a primary school teacher for 12 years and an Advisory Teacher for IT in London for the last three and a half. In January this year his school became an Acorn in Education Centre.



● *ANTs contribution to the product, with four options*

needed to be switched on and off frequently. Even with this protection, the staff were surprised at how many children knew the password.

I described the system I had in mind to someone at Acorn and it seemed to match an idea he was developing. It was still at the paper stage but he was quite sure it would go further. So an agreement was made that I would seek out a school to act as a trial site.

Peer talk

The product that has emerged is Acorn Access, a result of a collaboration between Acorn and ANT. It is described as a *Peer-to-Peer* network, as it allows all of the machines to be connected together as equals and does not rely on one particular machine to act as a file server. In the school we had one A5000 and seven A3000s that were to share the hard disk.

The hardware consists of a standard Ethernet card with the Access software on a rom. The software is a superset of the usual network software. This means that the card will allow the use of all the existing AUN products.

You are also provided with a T-piece to connect to your computer, enough cabling to allow the computer to be linked to a neighbouring one, a barrel connector to make the connection and a terminator in case this is the end of the line.

It was originally conceived of as a DIY solution and this has certainly proved to be the case if all the machines are to be in the same room.

However, primary schools will want their machines all round the school. It requires a cable a little thicker than the one connected to your mouse to be passed through the walls. This cable can then be connected to the set of cabling you are provided with, and then on through the next wall. A better solution for all this is to use a wall socket.

On occasions when more than one machine is required in a room, it is possible to link them together or to install a number of sockets.

A small amount of software is also supplied on floppy disk – a new copy of !Scrap and !Printers. Documentation is provided on one sheet of A4, printed on both sides, covering installation. There will probably be a second sheet with hints and tips to follow shortly.

All things to all men

The Ethernet card should be available in all formats. Firstly, an internal podule for A3000, A3020 and A4000, with a second full-size podule which will fit externally on the A3000 and internally on the A400 series and A5000. Finally, there must be a card that drives the universal network socket on the A3020, A4000, A5000 and A4.

Installation is a breeze. Just open the casing, insert the card, close the casing, connect the Ethernet cable and switch on. As the software is on rom it runs automatically and appears on the iconbar.

The system makes use of the fact that every Ethernet card has its own unique identification number; there is no need to configure station numbers. The computer can be connected at any point on the network, so moving the machine from one room to another is no problem.

If the computer has a hard disk an extra entry appears on its menu. This allows the disk to be shared, in one of two modes, with others on the network. If shared *unprotected*, others on the network have exactly the same access as if the hard disk were in their machine.

If you prefer the *protected* option, the public and private

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The printer is supplied complete with all consumables, cables and documentation as well as RISC OS printer driver software for Acorn RISC computers.

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(Single-bin version)
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Calligraph laser printers need no extra expensive memory or fonts (unlike PostScript or Laserjet type laser printers) and produce complex pages of text and graphics in tens of seconds, rather than up to 20 minutes or more required by other printers.

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The new printer driver software drives all the current Calligraph printers and includes many features required by professional printers and publishers producing final camera-ready copy. The software supports variable screen density – between 30 and 170 lines per inch screens are ideal – more can be designed by you.

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access options come into effect. Any files that are set for public access will be seen as normal on other stations, while those set to private will be invisible on all but the local hard disk. The chosen option will be retained even when the machine is switched off.

On machines without a hard drive, the new icon on the bar becomes the centre of attention. Initially it is labelled *discs*. Selecting this icon opens a window containing all the hard disks that have been set to share.

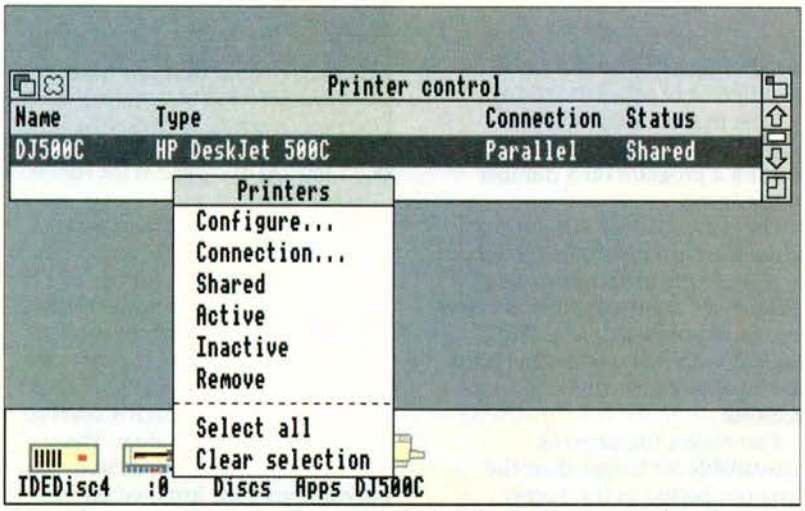
If there is more than one hard drive available on the network each must have a unique name. Double-clicking on any hard drive icon in the window will mount it on to the iconbar, removing the *discs* icon.

The menu available from this icon is labelled ShareFS – this is ANT's contribution to the product, with four options.

Show disks re-displays the window containing the accessible hard drives. If another hard disk is mounted by double-clicking, this will also appear on the iconbar. Dismount removes it of course. If all the hard disks are dismounted the icon reverts to the original discs icon.

Selecting *Save choice* will cause the mounted disk to be saved into the computer's configuration. Therefore, whenever the computer is switched on it will check on the network to see if the disk is available. If everything is okay, the icon will appear on the bar. If not, the icon will be grey and will have a question mark on it.

Setting up should be simple, just set the hard disk to share. On the remote stations, mount the hard disk and save the choices. From then on, each time a computer is switched on it will appear to have a hard disk.



● *Clicking menu over the iconbar on the hard disk machine reveals shared*

Changing resources

The original copy of !Scrap will need to be replaced with the newly supplied one that automatically allocates a space for each station on the network. The new version of !Printers is also multi-user.

On each station, load !Printers and add the printer definition file appropriate for the printer connected to it, set the desired configuration and save the choices in the usual RISC OS manner. !Printers retains the settings saved by each station. So loading it will subsequently load the printer driver appropriate to that station.

The new !Printers will also allow any printer connected to a computer with a hard disk to be accessible to all stations on the network.

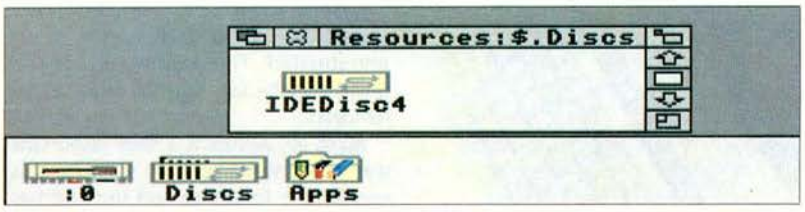
Clicking menu over the iconbar on the hard disk machine will reveal a new entry, *shared*. In this mode the printer will behave as a normal local printer on the hard disk machine, but will also appear in the printer control window of remote computers. It's marked as remote in the connection column and is set to inactive by default.

When printing remotely, the image is printed to the hard disk and then spooled out to the printer. If a number of computers print remotely the files are queued and spooled out in sequence.

Theory into practice

So how does Access perform in practice? It is just like having a local hard disk, though perhaps slightly slower. The timings proved to be quite variable, as it depends on the amount of traffic on the network and, more importantly, the amount of pressure on the processor of the hard disk computer.

But it is unusual for different machines in a primary school to be accessing the network



● *Selecting this icon opens a window containing all the hard disks that have been set to share*

Did you know...

Acorn Access uses a high performance Filing System called ShareFS for sharing data across a network. This uses client and cacheing to achieve high performance, and results in loading and saving speeds three or four times faster than Level 4 on Ethernet.

Access uses the full AUN protocol stack. Therefore, it can potentially work over any DCI compliant Ethernet card.

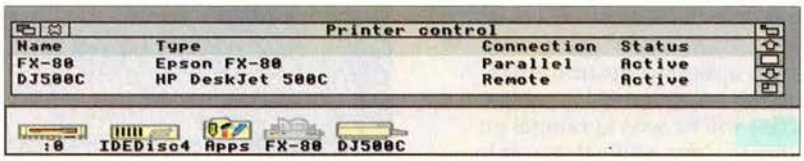
Access allows you to network up to a maximum of 30 machines, though Acorn advise that the optimum number is 20. There will be a certain drop in performance above this, but this is negligible.

simultaneously. The story may be different in other situations, such as in secondary schools where a whole class may be loading a program on a number of machines.

The network does not respond while the hard disk machine is *busy*, which usually introduces a few seconds delay into the disk accesses for the remote machines. The exception to this is when the hard disk machine is involved in local printing.

This makes the network unavailable for longer than the time-out period in the Access software and generates error messages. As soon as the hard disk is available the situation is resolved, but it can be quite irritating.

Every piece of software we tried loaded over the network. Some software that is not RISC OS compliant has problems. For instance, in Flare it is not possible to save a file directly from its menu across the network to the hard disk. Instead you need to return to the desktop and drag it in the conventional RISC OS way.


Printer control
Name Type Connection Status
FX-80 Epson FX-80 Parallel Active
DJ500C HP DeskJet 500C Remote Active
:0 IDEDisc4 Apps FX-80 DJ500C

● *It's marked as remote in the connection column and set to inactive by default*

Another problem is set by software that requires different start-up settings across a number of classes. Unfortunately, the software does not have the capability to hold different settings for each station in the way that !Printers does. The only way round this is to have different versions installed on the hard disk.

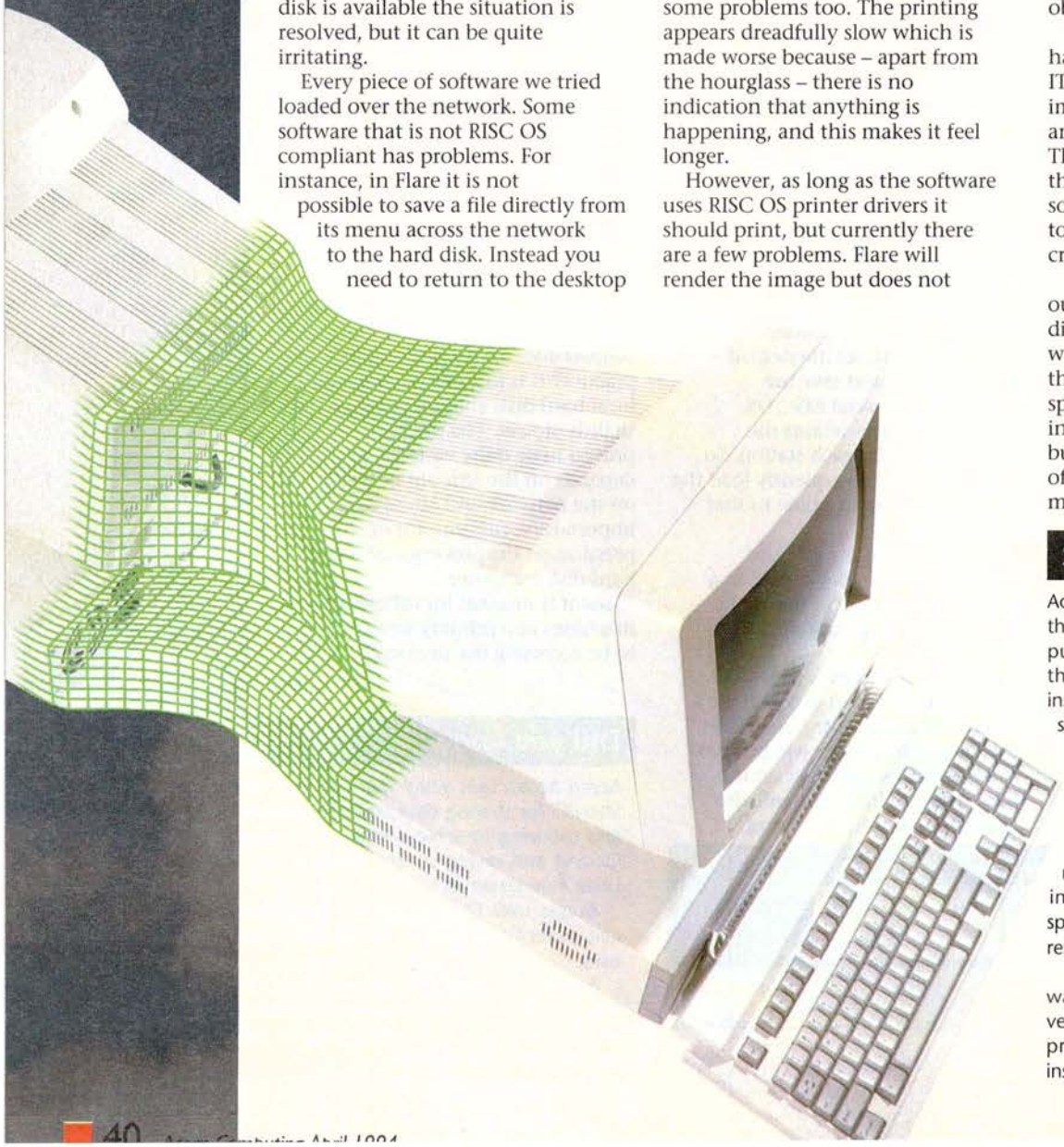
Remote printing has produced some problems too. The printing appears dreadfully slow which is made worse because – apart from the hourglass – there is no indication that anything is happening, and this makes it feel longer.

However, as long as the software uses RISC OS printer drivers it should print, but currently there are a few problems. Flare will render the image but does not send it over the network until you return to the desktop. Phases totally failed to print, until a specially written version was made available.

Acorn have been liaising with software houses whenever problems have been encountered, and new versions of software and printer drivers have been arriving, so the situation is constantly improving. I wonder if Microsoft, Digital Research or Novell would be so obliging?

Having the network in the school has greatly improved the access to IT. It has removed the burden imposed by the floppy disk and the amount of IT activity has increased. The small management problems that have arisen have been easily solved, and the network has proved to be totally reliable. It has never crashed.

A simple network should work out cheaper than adding hard disks to machines. Some schools will be able to install the network themselves, but others will require specialist help, particularly if they intend to connect a number of buildings, as the total length of cable must not exceed 185 metres.



Summing up

Acorn has informed other developers of the software, so they should be able to put in the necessary updates to allow their products to use this system. For instance, third party hard-disk interfaces should be able to have the share option in the menu.

Currently it is possible to set these disks to share by using the command line. The possibility of sharing CD-Roms, floppy disks and removable hard disks is also being investigated. The problem is not the speed but the fact that the disk can be removed.

All in all, Access is a very important way forward for primary schools. It is very simple to set up and use and has proved reliable, therefore making an instant impact.

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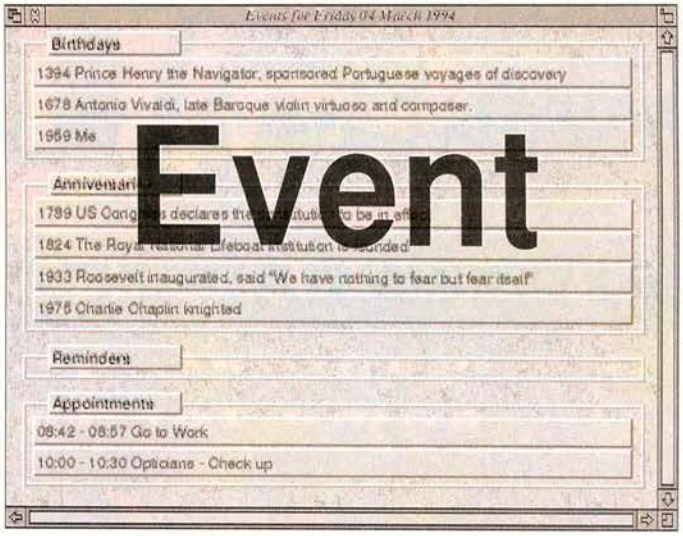
Events for Friday 04 March 1994
Birthdays
1394 Prince Henry the Navigator, sponsored Portuguese voyages of discovery
1678 Antonio Vivaldi, late Baroque violin virtuoso and composer.
1959 Me
Event
Anniversari
1789 US Cong s declares th stitution to be in eff
1824 The Royal National Lifeboat Institution is founded
1933 Roosevelt inaugurated, said "We have nothing to fear but fear itself"
1975 Charlie Chaplin knighted
Reminders
Appointments
08:42 - 08:57 Go to Work
10:00 - 10:30 Opticians - Check up

It's the 4th of March
Today is my birthday
The composer Vivaldi was born today
The RNLI was founded
Charlie Chaplin was knighted
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Being resourceful

Chris Drage looks at the hidden extras of the 'big' packages, such as Frontier 2000

WHAT child – or adult for that matter – would resist the invitation to stay at a high class hotel in the Carlisle area, with all expenses paid, given a Porsche complete with mobile phone and asked to explore the area? This is what Frontier 2000 offers budding historians – well almost.

The floppy disk and CD-Rom versions of this program have been reviewed in earlier issues – June and December '92 – of Acorn Computing. But there is a lot more to Frontier 2000 than first apparent. It is, in essence, a multiple resource pack and is the culmination of 18-months extensive development and trials.

In fact, the bright yellow box is not the only thing packed with all manner of resources, the CD-Rom is equally full of useful computer-based resources. Many of the best educational programs are sold with additional resource materials as, on the whole, the aim is to support the software and to extend its applications across the curriculum.

Sometimes the aim is to provide starting points for further study. In every case, the clear advantage in using software which has ready-made materials is that these usually provide activities for children not working at the computer to get on with, without the teacher having to burn the midnight oil making them him/herself.

The resources accompanying Frontier 2000 embody all of these intentions. They comprise:

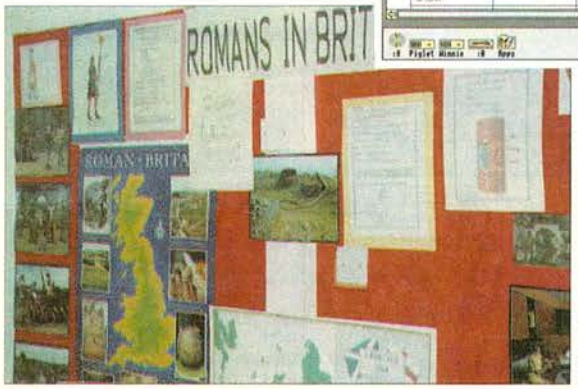
- 15 min video tape *The Story of Carlisle*
- An audio tape from the Tullie House Museum with commentary, ballads and an interview
- Information from the Tullie House Museum
- Information from the Carlisle Tourist Board
- Ten postcards
- Local *newspaper* of historical events
- Books: Building of Hadrian's Wall and Garrison Life
- Five Pitkin Pictorial Guides: *Carlisle Border City*, *Robert The Bruce*, *Bonny Prince Charlie*, *Mary Queen Of Scots* and *Carlisle Cathedral*
- Book: *Yesterday's Shopping in Carlisle*
- A sample of Roman timber
- A Reivers car trail with 50 Reiver family names listed.
- A photocopiable book of worksheets
- CD-Rom-based spritefiles (including 250 photographs), drawfiles, Maestro sound files, role-play scripts and 28 additional worksheets to focus children's exploration
- A computer-based timeline

That's quite a handful and the casual observer may be forgiven for thinking that they couldn't possibly be able to use all these in a history-lead topic of the border areas. Not so.

There is a wealth of material here for all manner of cross-curricular topics, particularly those with an historical emphasis. Take, for example, History Study Unit 2 (Invaders & Settlers) where the information on the Roman military and Hadrian's Wall would prove invaluable.

● *The paper resources*

● *Roleplay on or off the computer*



● *What one class produced away from the computer*

Similarly, when you come to comparisons with a contrasting home region in NC Geography, Frontier 2000 offers a wealth of environmental information and descriptions for the Carlisle area. Again, should you be wishing to tackle science AT2 (Life and Living Processes) there are considerable examples on the CD-Rom of flora and fauna in the natural environment, including lovely movie clips concerning the survival of barn owls.

How you use a resource bank like this is entirely up to you. Reference to it could be made throughout a Key Stage as Frontier 2000 is not tied to any particular age group or mode of use. There are at least five trails pertinent to primary schools and six for secondaries.

Although younger children obviously like the idea of rushing about in a Porsche to obtain clues and answers to the Prof's questions, older pupils will enjoy the multi-media approach to information, with ➤

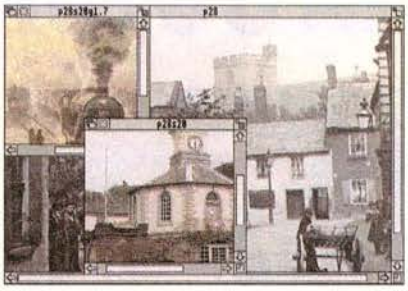
PRODUCT SPOTLIGHT

Product: Frontier 2000
Price: £49.95 (floppy), £79.95 (CD-Rom), £30.00 (Resource Pack)
Supplier: Cambridgeshire Software House, The Computer Centre, 8 Bramley Road, St Ives, Cambridgeshire PE17 4WS.
Tel: 0480 46794

its ability to let them take out what they want in the way of information and pictures for their own purposes.

It's hardly surprising education authorities as far apart as Hampshire and the Lanark Division of Strathclyde have opted to place Frontier 2000 in most of their schools.

One teacher, who has personally visited Carlisle, introduces the trails by having his primary pupils really imagine they are going to stay at a hotel in Carlisle – at the school's expense.



● *Use the pictures for a wide variety of topic work*

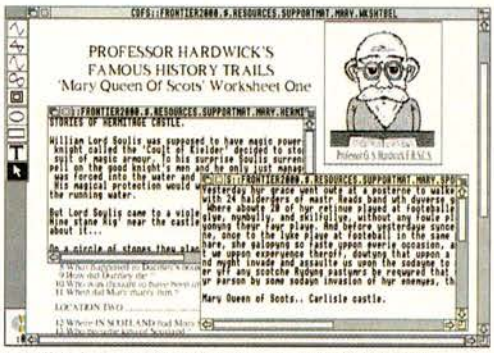
Before they take delivery of their white Porsche they must first plan their route there, choose companions, fill in a booking form, order a breakfast from the menu, keep a diary of each day; finally collecting the *keys* from the manager.

There's a lot of English and maths involved in this. They use the postcards in the pack as a basis for designing their own – printing sprites in some cases – which they write, describing their first impressions and which are (really) posted to their parents. All this heightens the realism.

● *Using Frontier 2000 straight*

The accompanying video tape provides a snapshot glimpse of the past 2000 years of Carlisle history and is probably of more use to older pupils. Looking for evidence in the trails can spark off similar activities in the school's local environment. Try looking for evidence of battles, family names, place names and latin inscriptions on grave stones in the local church yard.

Similarly, in the book about *Yesterday's Shopping* the illustration of poultry hanging outside a shop could lead to an investigation about refrigeration, food decay and preservation, or the early photo of Halford's Bike Shop may result in a comparison being made between bike prices of today and yesteryear – a spreadsheet could determine average earnings/costs and the relative value of money.



● *All information is in Edit and Draw format*

The audio tape contains a wide range of materials including people living today describing life at the turn of the century, border songs and sound effects.

As the tunes are stored on the disk as Maestro files they can be played, printed out and could form the basis for music/singing lessons for a half term.

The Frontier CD-Rom contains additional materials from which items can be printed out for project work or wall display – an aspect Acorn is very keen to promote with CD-Rom suppliers. For example, a drawfile of a Roman legion graphically illustrates just how many bodies were involved and how they were organised.

Among the numerous work sheets and information screens, high quality photographs and Replay files, there are four role-play exercises based on Hadrian's Wall, Robert the Bruce, the Reivers and the Railways, which can form the basis of dramatic role-play even at primary level.

One item I find of particular value is the computer-based timeline. This contains no less than 35,000 words and broadly covers all important events in British history.

It can be used to search for up to 14 fields from date-to-date or by a single word and enables events of a period to be printed out in detail. It is one of those items you need for every history study.

Summing up

I must confess to being very enthusiastic about Frontier 2000. It is an outstanding resource which could form the basis as a central theme for a term's work in science, history and geography, from which all manner of activities can stem, addressing a good many NC Attainment Targets in the process.

It is historically faithful, makes available a large number of historical sources, has good attention to detail, and provides knowledge and information requiring understanding and interpretation.

Museums, too, could sit up and take note of what is an expertly assembled resource pack, as the concept is unlimited by location or events, and many museums committed to education might well take a leaf out of the Tullie House book and offer access to similar resources for visiting classes.

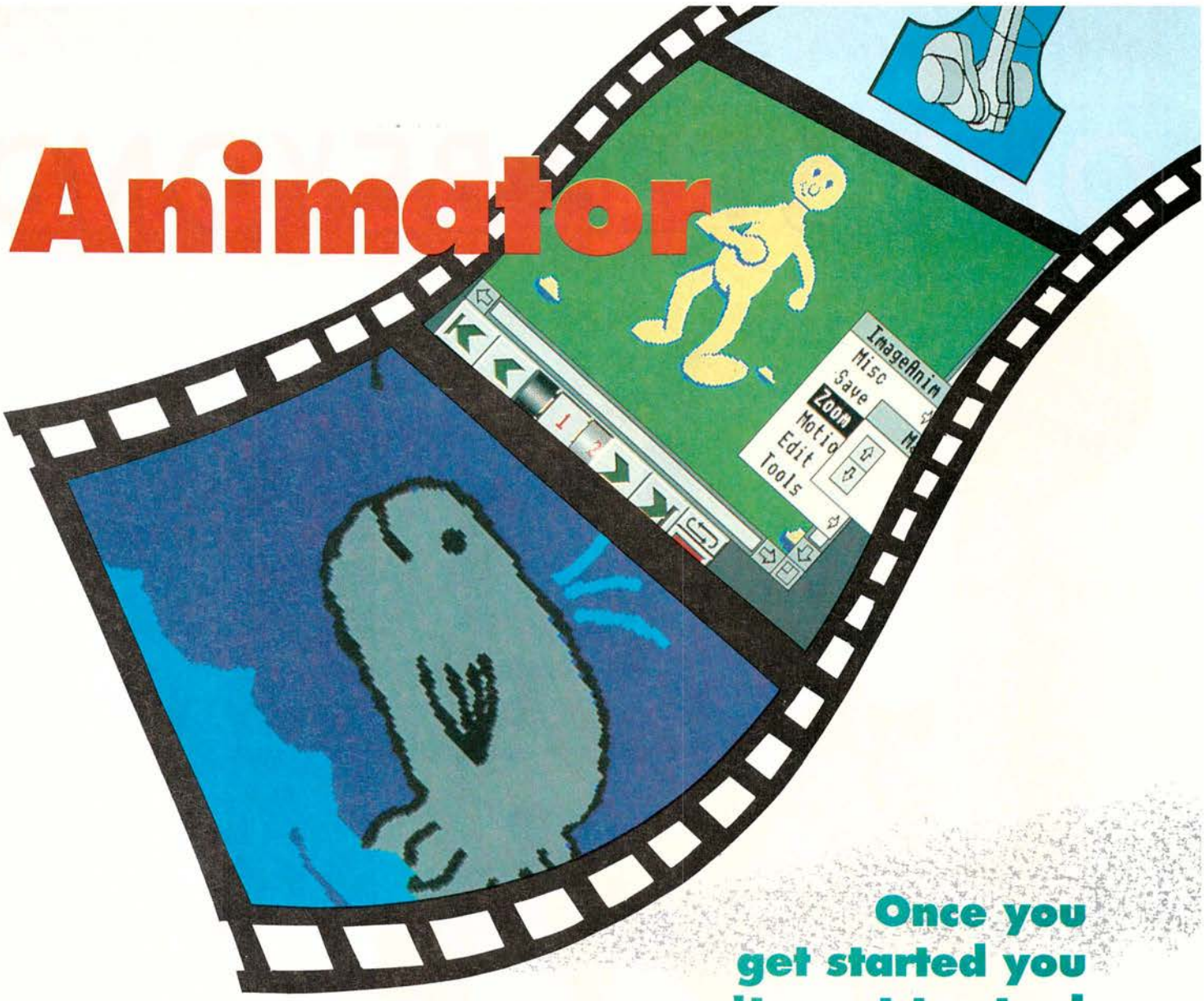
After all, last year Frontier 2000 won the prestigious Calouste-Gulbenkian Museums & Galleries Award for the most imaginative piece of educational work. In the museum world that's as good as winning an Oscar.

● *Use photos taken by an Ioncamera*

● *Discover the problems of today's barnowls*

● *Go rooting through old documents*

Animator



Once you get started you won't want to stop!

Image 'Animator' is very easy to use, and is a fun way to make your pictures come alive. Within a few minutes you can be producing your own animated films, either using 'Animators' own built-in set of paint tools or using your own sprites (paint files).

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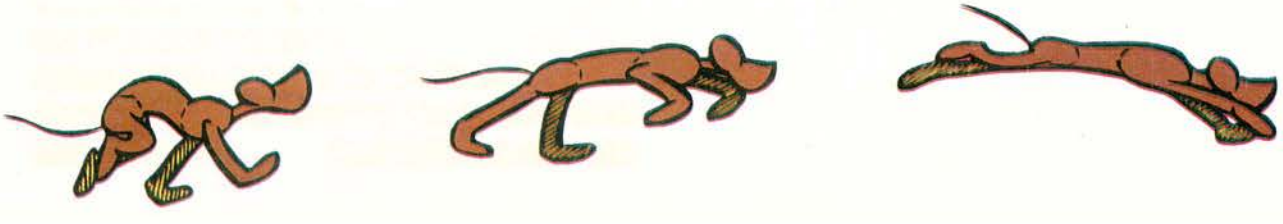

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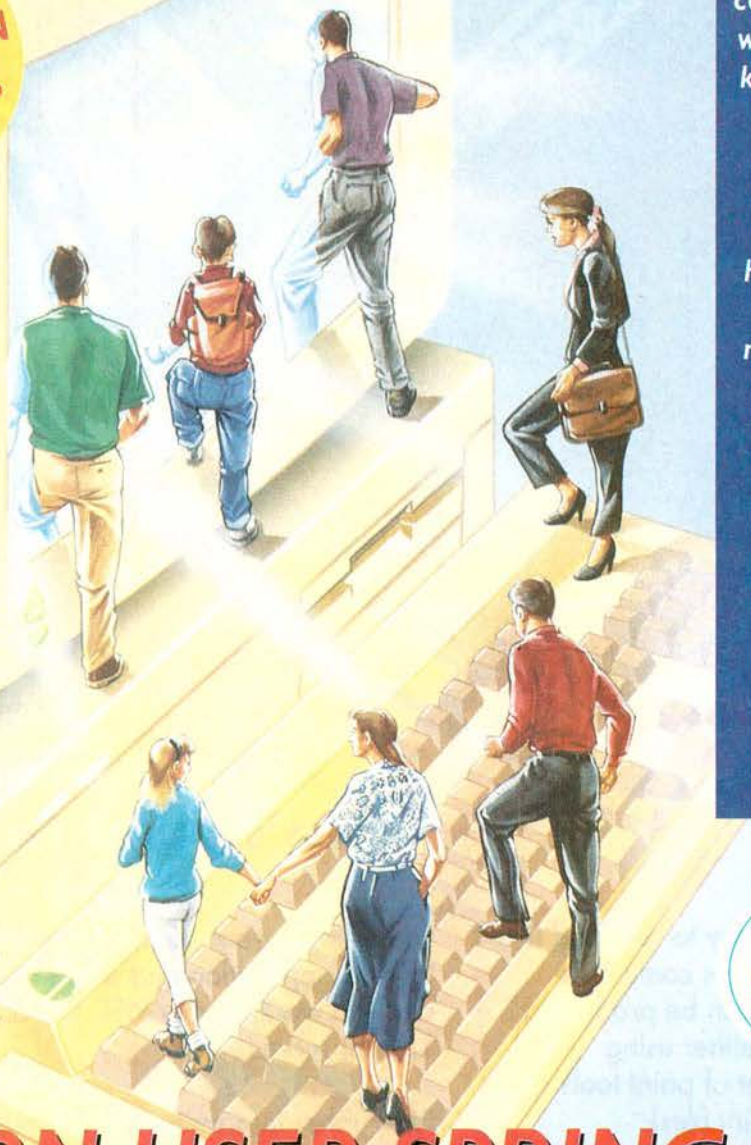

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Useful for a wide variety of curriculum ages and subjects, you can use the information on hotels for role playing, or the facts and features of the infamous Reivers to plan a visit to their haunts. For more ideas read Chris Drage's article on page 49.

What to do

There are no questions to answer, no tie-breakers to complete. The first 250 teachers to phone the Tullie House Booking Clerk between 10am and 3pm Monday to Friday (0228 34781) to reserve their Teachers' Pack will be successful, but you MUST come on a visit to Tullie House to collect it. This offer is only available to teachers who read Acorn Computing. So what are you waiting for?

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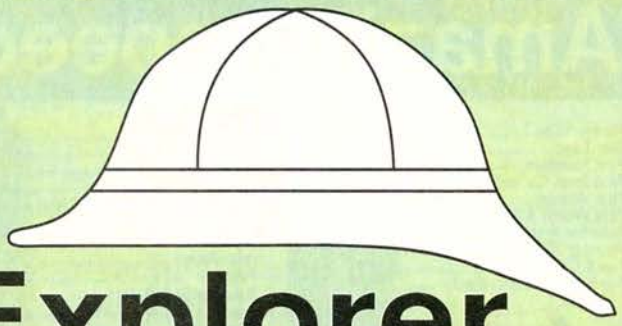

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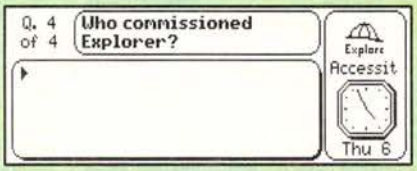

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Parent power

The intrepid family Cook were sent off to Dorset in February, to sample a weekend combining computers, education and entertainment. Here are their reports

AT THE tender age of 21 I used to look out of the window in the labs of a government research establishment across Weymouth bay to the hills beyond. Little did I know then that 21 years later I would bring a wife and two children to the other side of that same bay to stare back at the labs.

Well that's how I thought I'd start my article when I was first given the job of checking out the *Super Choice Parent Power* weekend break. In reality the visibility was so bad that only occasionally did Portland loom out of the gloom. Nevertheless, despite the very cold weather there was certainly no despondency here.

Super Choice specialise in activity holidays for schools and they have recently combined this with Information Technology or IT to form Active IT.

The idea is that computers are used in a variety of simulation and data-gathering roles. You might have seen them during last November's Wembley Acorn World show, getting youngsters to abseil down a large wall, while monitoring their heart beats.

Well, the Parent Power weekend is an offshoot of this. Organised jointly with the Sunday Times, Managing Director Lloyd Smith describes it as *leisure with a purpose*.

The idea is that you have a family weekend, with plenty to keep the kids amused and hopefully you will learn something about computers and information technology. However, I was not quite sure what to expect as we made our long journey down the M6 and M5, slowly inspecting every traffic cone on route.

What I hadn't expected was the number of people attending; there were around 320 visitors along with about 40 staff. On arrival at Friday tea time we were given an information pack and directed to our chalet.

There was a timetable indicating all the activities and the session times for the weekend along with several sheets describing the sessions.

● *Clare Johnson and Lloyd Smith*

● *Active is the word*

Some sessions could only accommodate limited numbers so you had to book these in advance. However, many of the activities were available on a *drop-in* basis.

The activities could be roughly split into three different areas: Sports, computers and seminars. Within half an hour Alec had mapped out his own timetable along with Graham's and a fair bit of Wendy's and mine.

We signed up for the Photo IT sessions along with the Cars/Maths IT and decided to give the Archery and Rifle shooting a miss. Each seminar was given twice over the weekend and so Wendy and I arranged to see them all.

This left two sessions to wander about and see what was going on. Friday concluded with dinner and a short introductory talk in the bar followed by a disco.

Despite the cold weather the chalets were well heated and, after

➤

● *I don't think he's after Lemmings*

● *Despite the weather quad bikes were very popular*

● *Up you go*

● *Graham – our reident technophobe*

➤

breakfast, the children ran off to take part in karting and quad biking, returning very briefly to tell us what fun they were having. This pattern continued for most of the weekend.

Wendy and I went off to the first seminar given by Ashley Oliver from Acorn. Unfortunately, due the the cold, you had the choice of having the heating on or hearing what he was saying, but fortunately these snags were ironed out later on. Then we all met up again for the Photo IT session, where we each had an A5000 computer in a lab holding 12 machines.

We were introduced to the Revelation drawing package and had our photo taken with a Canon Ion digital camera. Then we could all play about *improving* the photograph.

For Alec this amounted to having lots of Alecs in our family group, Graham made his face into a clown and Wendy framed the family in an oval frame and drew an intricate border round it.

As for me, I went delving about on the network and came up with a sprite of the inside of a refrigerator and put our family in the fridge, as that was what it felt like outside.

After lunch Wendy and I grappled with a mathematical model of a formula one racing car, while the children tried their hands, or should I say legs, at rock climbing and abseiling. The sessions on the cars – courtesy of CSH and Cars: Maths in Motion – were great fun despite the off-putting title.

Once we had tuned up our cars, the best 30 were raced in the evening for a bottle of champagne. I was mortified not to get into the final, something to do with rounding errors in the simulation I reckon...

Then it was off to see the inimitable Mike Beecher for a seminar about computer music. If you have ever seen him perform at the computer shows you will know the sort of dynamic/manic style of presentation he has – about as far removed as you could imagine from the other presentations. This was computers for entertainment at its best.

● *Go on – touch the keyboard*

Next, a more low-key presentation of multi-media from Broadcast Media, which was nevertheless a fascinating insight into the present and future of computer interaction.

One development happening soon is the arrival of study shops. Here, for about a fiver, you can sit down in a room for an hours computer interactive session on a topic of your choice.

Subjects are split up into several one-hour lessons and the idea is that you can have the lessons when you need them and can fit them in. The great buzz phrase that kept coming out was *the digital super-highway*.

Back in the Ball Room was a large inflatable labyrinth with kids and the occasional adult bouncing about shooting each other with laser guns. There were also two A3010s surrounded by a dense knot of children playing games – Lemmings appeared to be the favourite here.

The evening revolved around the car race. The messages were read out in Murray Walker-style with plenty of audience reaction, including cheers when the leading car, the Porsche, pulled out with engine trouble, and there was great drama as the leading car ran out of fuel on the last lap.

Champagne was presented to the winners and slightly lesser

wines to those placed second and third.

Exhausted we all retired, it was all I could do to keep my eyes open during Match of the Day but then, Arsenal often have that effect on me. The Sunday brought snow to Weymouth – quite a rare occurrence – and thankfully breakfast was half an hour later. Most of the activities continued despite the snow and we went to the remaining seminar by Clare Johnson.

Clare is an IT adviser for the Borough of Bexley and told how IT fitted into the National Curriculum. However, she admitted this information was only valid for one day as the following day Ron Dearing was going to present the slimmed-down version.

How did we like it?

Well, the whole family agreed that they had had great fun, even if it wasn't quite what we had expected. There was less *hands on* playing with computers and more consideration of what computers could do.

There was also a great deal to do that was not associated with computers. Most of the people we talked to also felt it had been both enjoyable and worthwhile.

I took a look at the questionnaires people returned on leaving and they mainly confirmed this impression. This was, in a great part, due to the attitude of the staff. They were helpful and friendly without being too pushy – quite an achievement. Would I go again? Quite definitely.

Mike Cook

A woman's perspective?

FLYING off to the Alpine slopes for the skiing or jetting off to the Caribbean in search of the sun? Forget it! Head for the action on the south coast of Britain. Weymouth in February will never be the same again.

Take a holiday camp that should by rights be gently snoozing the winter away. Add four brand new computing labs equipped with Acorn A5000s, several hundred keen kids with parents in tow and a handful of guest lecturers who plainly devote every living minute to their computers. You won't even notice the weather.

We had two sessions in the computing labs.

Session 1: Playing around with a drawing package called Revelation, scribbling on photos of ourselves taken with a disk-imaging camera. This was the only chance most of us got to see one of these in action for a while as they come at about £2,500.

Session 2: Mum and Dad (Grown-ups only on this one) sharing a machine. You just try prising Mike Cook away from a mouse – it's hell I tell you! I relegated him to working out the maths needed to keep our Formula 1 racing car, Bluebird, speeding round its track. At night the finals were run in the bar. Did we win? Don't ask – we blew up in the eliminators!

● *The family Cook*

Meanwhile, Alec and Graham were abseiling and go-karting.

There were four lectures/seminars on offer. First there was a nice man with a beard from Acorn who had to field some hostile questioning from the *Well-I've-got-a-PC-on-my-desk-at-work* lobby. He educated us in the general architecture and historical development of little machines.

Meanwhile, Alec and Graham were doing quad bikes and laser questing.

Then we went to see the inimitable Mike Beecher, a fast-moving showman who demonstrated the vast range of sounds and music you can get out of an Arc. Everyone found it really entertaining and Alec was inspired enough to give our own old-fashioned Arc some serious

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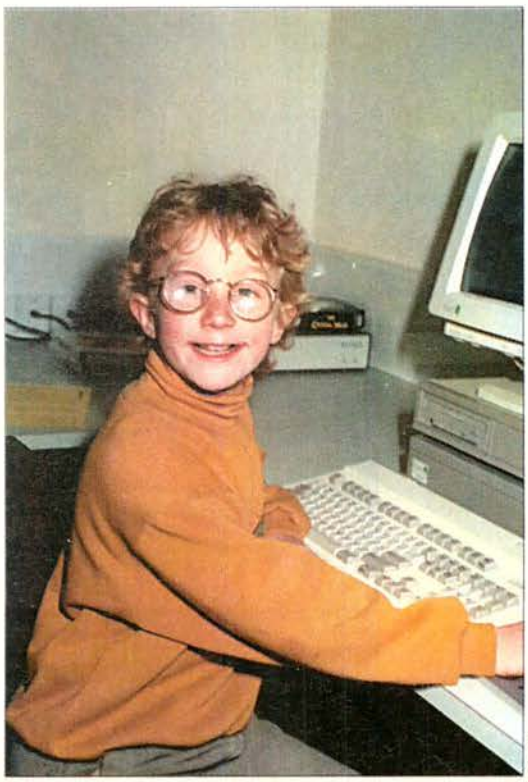


● *Alec was in his element*

The Cook Family

Mike Cook	Age 42	Physics lecturer.
Wendy Cook	Age *thirty something*	Teacher who has learned to deal with computers to keep her marriage intact.
Alec Cook	Age 12	Computer mad.
Graham Cook	Age 8	Not so keen on computers, prefers watching TV while using a rowing machine.

➤

welly when we got back home.

Meanwhile Graham played Aeroball and went go-karting (again).

Our third seminar showed us how professionals use Arcs to make promotional videos and material for TV. We saw just how easy it is to make a glitzy multi-media video on the Arc. We also heard about the impending future of digital highways and information stores, where you buy time to work on machines in walk-in stores – first one due in Brighton soon.

Alec and Graham went climbing and trampolining.

Clare Johnson, an IT advisor for one of the London boroughs, talked eloquently about the rapidity of change in schools computing over the past 15 years and looked at current educational provision and use of computers. It's a changing world and almost impossible to foresee just how far we will get in the next 15 years.

The buzz word for the weekend was *DIGITAL HIGHWAYS* and if anyone else says *platform* as in *educational platform, commercial platform, Acorn platform*, I shall scream.

Exhausted, we packed our bags and searched in vain for Graham's cuddly rabbit. Thank you Superchoice, it arrived safely by post two days later.

We drove back with our fingers itching to get on the machines at home. Everyone except Graham – our junior technophobe, "Computers are boring, except Lemmings, and maybe Mad Professor" – was inspired with ideas for new programs to write and things to try, and a vision of how great a change computers are bringing about in our lives and how much more significant that change will be over the next few years.

Wendy Cook

Junior views

AN Active IT Holiday Weekend, or at least that's what I thought it was. The weekend started off great. We arrived and got the key to our fabulous chalet with tea and coffee making facilities, TV, and bathroom almost as big as the bedroom.

Then, when we had unpacked we started to plan what we were going to do.

There was archery, abseiling, climbing, quad biking, go-karting but I was surprised to see there were no computer activities. Then my dad found something on Cars or Photos and IT but they were the only computer activities available. I was very disappointed. And what made matters worse was that the cars project was for grown-ups only...

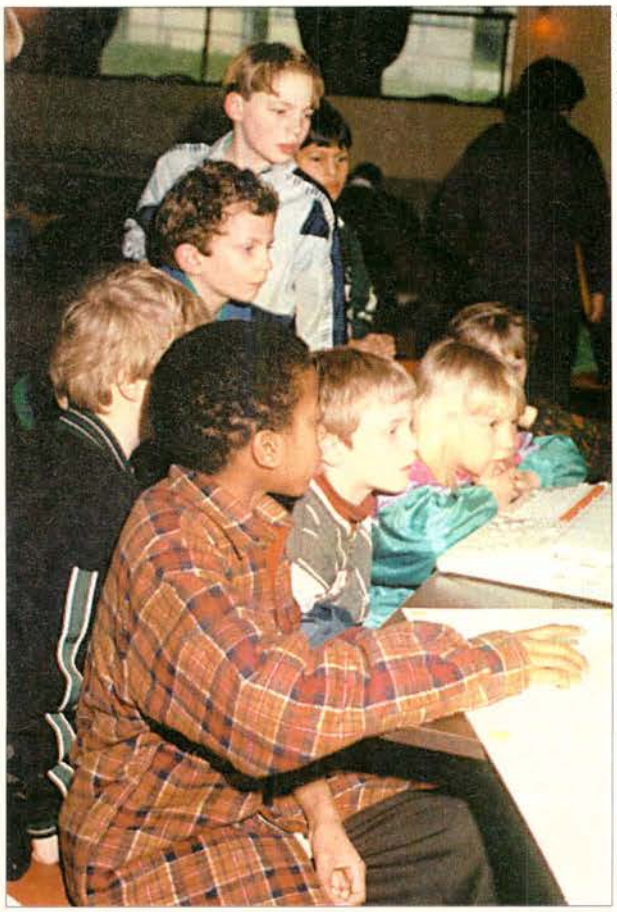
Even though there was only one computer activity I had fun all the same, even though I did crash on the quads.

Alec Cook

MY favourite part was the go-karts because they went very fast. I liked the TV facilities and the bath in the bathroom.

The chalets were good because they had towels and soap. I hate computers but it didn't matter because there were NO computers at all.

Graham Cook



● *Such concentration – and this is a game*

● *What goes up...*

● *...must come down*

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The Learning Curve System can be purchased with the A3010, A4000 or A5000 range of computers. It consists of an audio instruction tape and software including,- Acorn Advance, PC emulator, & Demos of Rhapsody2 Scoredraw, Voxbox, Fervour, Darryl the Dragon, Topography, smArt, The Crystal Rainforest, Naughty Stories and Arcventure.

Home Office System

The Home Office System can be purchased with the A4000 or A5000. It consists of an audio instruction tape and software including,- EasiWriter, Datapower, Pipedream 4, PC Emulator & Demos of Prophet and Almanac.

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Ebeneezer	*EMod*	*Ex_port*	*Extend*	*ExtendV2*	*FCodex*
Funky	*Garfield_I*	*Garfield_W*	*Handler*	*Icon*	*Image*
Image2	*Increment*	*IRQFix*	*Link*	*MHelp*	*Mode87*
Module	*MonitorDat*	*MyMod*	*NetManager*	*NetStatus*	*NewDesk*
Parasite	*Penicillin*	*Poltergeist*	*Runopt*	*Shy*	*Sprite*
SpriteUtils	*System*	*System2*	*Taskmanager*	*T2*	*Terminator*
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Wimpman					

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Keeping it short

Digistore: An end to broken directories

HANDS up those who've seen the *Broken Directory* error message appear on their screen? I'd not come across it until I booted up a few weeks ago and tried to access my hard disk.

Okay, so we expect to get an occasional glitch appearing on a hard drive, but it did seem cruel that the offending track was exactly on the memory location occupied by my root directory. Murphy's Law, I suppose, but exquisitely frustrating to have a disk full of viable data, none of which you can access.

I did a backup on a second hard disk so there was no permanent damage but it set me thinking. What if burglars, fire or the cat jumping on my desk had put the lot out of action?

● *Click here to get it all back*

Backups need to be stored remote from the system.

Also, with a second hard drive you can't run a proper grandfather, father, son hierarchical backup.

But, with the help of Digital Services, you can use a streamer tape – high capacity tape in cartridges which can be removed from the machine and stored safely. With half-a-dozen cartridges you can have half-a-dozen backups, one for each day of the week, stored in different locations. This is much more secure than using a single additional drive.

● *Preparing the archive list*

Capacities run from 60Mb using 0.25in tape to 2.1Gb or more using DAT (helically scanned wide tape). Naturally, streamer tape is not accessed as rapidly as disk – typical non-sequential reads take from a few seconds to a few minutes, as the tape has to be run through to find the right place.

Writing is commendably fast with a blur of pathnames cascading through the Filer window as data streams off disk and on to tape. Internal and IDE drives spool a bit faster than SCSI ones, as Acorns can't work in both directions at once. The routine use of streamer tape is for end-of-day backups when speed is unimportant.

I have had an elderly Cipher ST150 streamer tape drive sitting on a shelf for a couple of years now. My original expectations of connecting it to my machine's SCSI bus were frustrated by Acorn's SCSI standard, which only supports direct access devices – like disks and CD drives – not serial devices (tape).

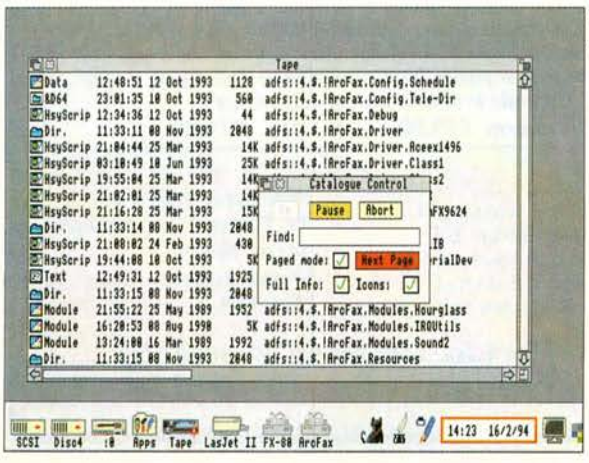
Then Digital Services brought out Digistore and RISC OS streamer tape handling software. Nothing could be easier. I just plugged the tape unit into a vacant SCSI connector and clicked on Digistore. Behold, a new filing system, and I was backing up my hard disk on to tape.

The facilities provided by Digistore are Archive, Backup, Catalogue, Erase and Recover. If you click on *Archive* you get a selection window where you drag directories or files to be archived. If you want to archive the lot you just type *adfs::4.$* or *scsi::4.$* in the window.

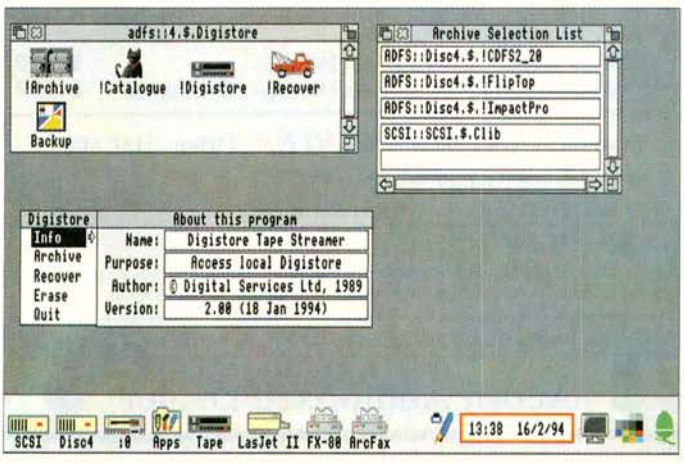
If you want you can set a date so

PRODUCT SPOTLIGHT

Price: £75. Software + Streamer Tape Unit: 60Mb £599, 250Mb £799, 525Mb £899, 2.1Gb £1099
Supplier: Digital Services, 9 Wayte Street, Cosham, Portsmouth, Hants PO6 3BS.
Tel: 0705 210600



● *Cataloguing a tape*



● *Digistore features*

that only files created or altered after that date will be archived. *Catalogue* will list the contents of a tape. It has a find box into which you can enter a search string. *Recover* enables you to recover the whole of an archive or just selected items.

Since Digistore is a proper filing system you can access the tape from an obey file or from within a program. Several operating system commands are provided for programmers wishing to select, mount and control the tape drive. Also supplied is a TaskObey file *Backup* which can be run from !Alarm to start an unattended backup.

Unfortunately, the software does not prompt you to insert a new tape, so if you are backing up a 105Mb hard disk to a 60Mb tape you will have to specify how the files are to be partitioned.

In such a case, the logical approach would be to archive your applications separately from your data directory and only backup the latter routinely.

Digistore has been tested with Acorn, Cumana and Morley SCSI cards. Provided the SCSI standard is properly implemented, it should work with other SCSI cards too.

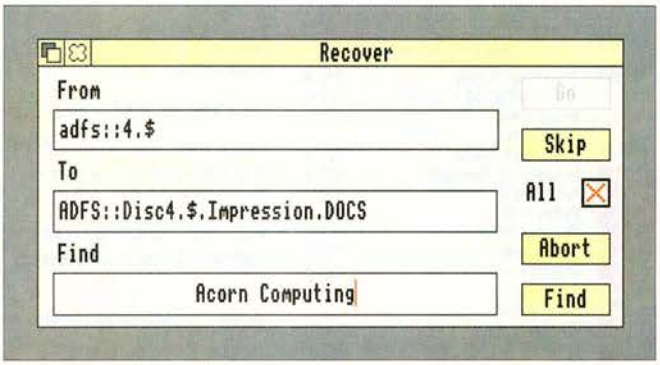
● *Archiving in progress*

You can then use any old streamer tape unit which has a SCSI bus connection. Digital Services are happy to supply just the software alone or a hardware plus software package.

● *Tape filing system active*

If the prices of the latter put you off, consider how much capacity they offer. Where else can you get a megabyte of writeable memory and the hardware to run it for 50p? For schools, colleges and business users this is an attractive and cost efficient option.

Clem Vogler



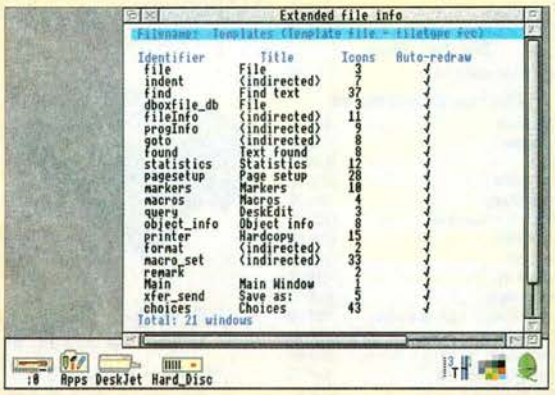
● *Recovery*

DeskEdit 3: Improving on Edit

DESKEDIT mimics Acorn's Edit but has many extra features aimed at programmers in C and Basic. The changes between version 2 and this one are not as great as between version 1 and 2, but are refinements which regular users will find handy. Purists will be pleased to see that all of the windows have been changed to the new 3D look.

These are the main features:

- There are 20 new invisible markers associated with the numeric keypad for easy movement around a program.
- There are new debugger windows which can be used in conjunction with library routines for Basic and C. These enable programs to send data to the windows at run time.
- Dragging a file to the DeskEdit icon on the icon bar with Alt+Shift pressed will display extended information on certain types of file. This is particularly useful for modules, sprites and templates.
- It is possible to have a *safesave* directory where a copy of any file due to be overwritten is kept. This way a mistaken save can be undone.
- Specific filetypes can be nominated for input and output filtering, replacing carriage returns with linefeeds, expanding tabs to spaces and removing DOS end-of-file marks. This will be reversed on all saves from F3, except for tabs.
- DeskEdit will auto-indent Basic programs, but the user still has to generate reductions in indent by pressing Shift-Return instead of Return.
- The C Syntax checker has been improved.



● *There's an extended info file for templates...*

● *...as well as auto-indents for Basic*

Disappointingly, there is no DeskEdit 3 manual. It has the DeskEdit 2 manual, quick reference card and a supplement. This is handy for users who are upgrading, as the changes are clearly indicated, but is confusing for someone using the application for the first time.

For a fiver the upgrade from DeskEdit 2 is worthwhile, and DeskEdit 3 is recommended for C and, particularly, Basic programmers who find Edit too restricting.

John Allen

PRODUCT SPOTLIGHT

Price: £27.19 (Upgrade from version 2 £5.00, from version 1 £8.47)
Supplier: RISC Developments, 117 Hatfield Road, St Albans, Hertfordshire AL1 4JS.
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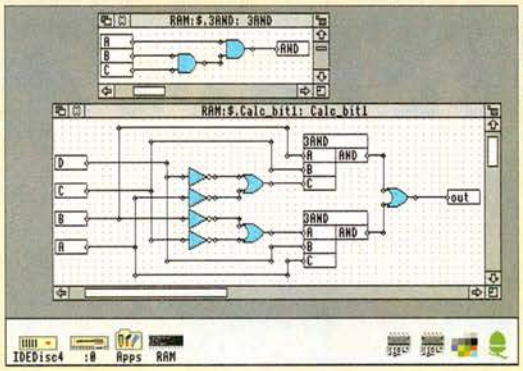
OakLogic: Virtual reality



● *Some lower-level parts of a modular binary multiplier*

COMPUTERS have, in recent years, found themselves increasingly used as simulation vehicles in the engineering and mathematical disciplines.

Their great processing power makes them ideal tools for testing innovative new designs in a cost-effective manner, seeing whether they will work long before a physical realisation is made.

This has had the effect of streamlining the design process, allowing most fundamental flaws to be spotted at a very early stage, passing minimal development costs down to the eventual end-user.

In this review we take a look at a professional simulation package and a simpler, dedicated logic circuit design tool.

This package is quite different to ArcSimp, which is more of a simple design program than a true simulator. It is intended to be used to test logic circuit designs – such as those found in silicon chips – before their implementation in hardware.

The manual is well presented and easily digested – the first few pages serve to briefly introduce all elements of the program with a more in-depth look at each being given later.

After loading the application, clicking on the program icon opens a circuit design window and a toolbox which provides access to an array of standard components and facilities:

- an inverter (NOT gate)
- two-input *AND, NAND, OR, NOR and XOR* (exclusive OR) gates
- a clock, bulb, boolean inputs and outputs
- a general-purpose *chip* option
- an on/off switch used to *power* the circuit

Components are placed on the circuit board by dragging them over from the toolbox. An on-screen grid aids positioning, with components being snapped to it whether it is displayed or not.

The chip option allows more complex components to be designed as independent *black box* modules which can be liberally introduced in higher levels of the circuit. This reduces repetition and makes for more maintainable designs. Many example chips are included on the disk inside the application.

To test a circuit, it needs to be switched on (via the toolbox) and all switched inputs altered **manually** by clicking on them. This makes exhaustive tests quite laborious, particularly if such need to be repeated as a design evolves.

The ability to perform a full test automatically using a logic chart where expected outputs were defined for all inputs would have been appreciated.

Stephen Wade

PRODUCT SPOTLIGHT

Price: £70 (Site licence £280)
Supplier: Oak Solutions, Dial House, 12 Chapel Street, Halton, Leeds LS15 7RN.
Tel: 0532 326992

ArcSimp v3.00: Simulating experience

ArcSimp is a conversion of a simulation package which has been used in industry for many years and can be used to model anything from a simple pendulum to the solar system or even an aircraft in flight.

Systems are entered in schematic form using a series of function blocks linked by connecting lines. Functions can be placed in the design window by dragging them from a scrollable function tool window. All items are snapped to a grid, which unfortunately is not visible.

Once a design has been entered, a simulation can be run – optionally in real time – with up to six elements being traced both graphically and numerically. The numerical traces can be used to simulate a graphical representation of the system, providing the best possible link between operational theory and physical representation without actually building it.

Numerous functions are provided as standard, these include a summer, inverter, limiter, gain facility, integrator and differentiator. The professional version includes a user-written option which allows you to define additional functions – but you'll need to be fluent in Desktop C before you can use it.

Memory permitting, multiple copies of ArcSimp can be installed and linked together in parallel, thereby allowing systems with great complexity to be simulated. Also, with sufficient hardware, connections can be established between a running program and external devices, adding an extra dimension to the general applicability of the package.

There is a digital gate option/version which allows logic circuits to be designed and tested as with other simulations. However, electronic components often have numerous control lines connected to their inputs and outputs. As ArcSimp insists connections have to be made directly between inputs and outputs of function blocks, this can lead to untidy or illegible circuits unless great care is taken.

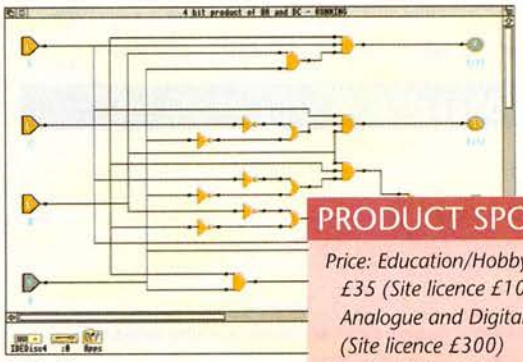
ArcSimp is a very sophisticated package and only an in-depth look at the various manuals and extensive hands-on experience can hint at the wide range of applications to which it is suited.

ArcSimp is a very powerful application, packed with many sophisticated features – ideal for simulating reasonably large mechanical systems and proving laws of mechanics by demonstration, but not really suited to logic circuit designing.

It takes some getting accustomed to, but will prove a useful tool to engineers, physicists and mathematicians alike.

OakLogic, in contrast, is a simple and easy to use application which will satisfy the needs of both electronic engineers and students of electronic theory.

Stephen Wade



● *Testing a simple two-bit binary multiplier*

PRODUCT SPOTLIGHT

Price: Education/Hobby Digital version £35 (Site licence £100), Professional Analogue and Digital version £105 (Site licence £300)
Supplier: Mijas Software, Winchester Road, Micheldever, Winchester, Hants SO21 3DG.
Tel: 0962 774352

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Bank/building society may decline to accept instructions to pay direct debit from some types of accounts.

Keeping track

Steve Turnbull surveys the improvements to Almanac 3

NEARLY a year ago we first reviewed Almanac from Stallion. It's a personal organiser with the ability to link items in one section of the database with items in another, thereby creating a flexible – and user-defined – structure.

Since its initial release the program has gone through a number of enhancements and additions, building its competence and usefulness even more. So let's take a look at what it can do and how easy it is to use.

Almanac originally had six basic record types: Diary events, anniversaries, to do, correspondence, name and addresses plus sticky pads. The first addition was company names and addresses followed more recently by transactions.

Each type of record could, and still can, be displayed in different sections which are of nine types: There are day diaries, weekly diaries, month planners, year planners, anniversaries, correspondence, to do lists, address books and sticky indexes. These were followed later by company address books and bank accounts.

Every record belongs to two types of category. There's its type (anniversary, transaction or whatever) plus a user-defined category name which has an associated sprite – in fact the category is the name of the sprite. So an account transaction might have a *Petrol* icon associated with it to show that it was a payment for petrol.

Each display section can have a filter set-up so that it only displays records of a particular category or group of categories, or it can be set up to exclude specific categories.

So you can tailor each section (and create new ones) to your own needs. For example I have one which only shows records related to Acorn Computing while you could have a bank account display which only shows transactions related to the car – then you can easily add up all the costs over any given period.

Every display section has a set of icons along the top that allow you to create new records and, where appropriate, the new record is automatically linked to the currently displayed record. For example, if you display the record belonging to company XYZ Limited, you can create a new personal name and address record for, let's say, the MD. This is automatically linked to the company.

At some future time you can click on the *Staff...* option in the XYZ Ltd company window and you'll be presented with a list, in a sticky pad window, of all the people that have been linked to the company, presumably the staff.

The same trick can also be applied to Correspondence which can be associated with people, companies, transactions and so on.

Sticky pads are the strangest part of the whole system. They can be created automatically and then saved so that the information is not lost when you exit – its icon will appear in the sticky index section – or you can create new ones directly and create different types of record from it (they will appear on the pad of course).

You can also drag files off a disk and they will be remembered too. Double-clicking on an item in a sticky window displays it if it's an Almanac record type or tries to load/run it if it's a disk object.

Facilities are provided to import and export selected data to and from records in a variety of formats, including a specific type for Impression. You can define and name your format types, so that once you've created one it stays in the document and you can edit it later.

The new accounts section is very nice indeed, not only does it store all the account transactions – you can have as many accounts as you need – but you can set up numerous sub-types for income and expenditure, like Standing Orders and Interest payments. You can also link a special transfer function to move money from one account to another on a regular basis.

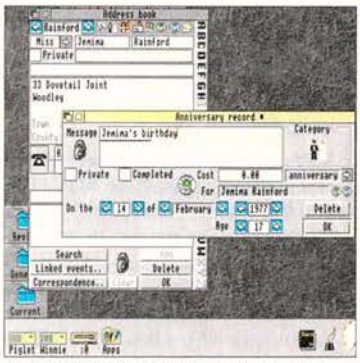
I've been using the accounts for about four months now and the system allows me to *predict* my financial position for at least the next month. It's very easy to use.

In my view the only area that is lacking is that there's no alarm facility. Many people who use Acorn machines in their work, including me, use the Alarm clock to remind themselves about events and things to do.

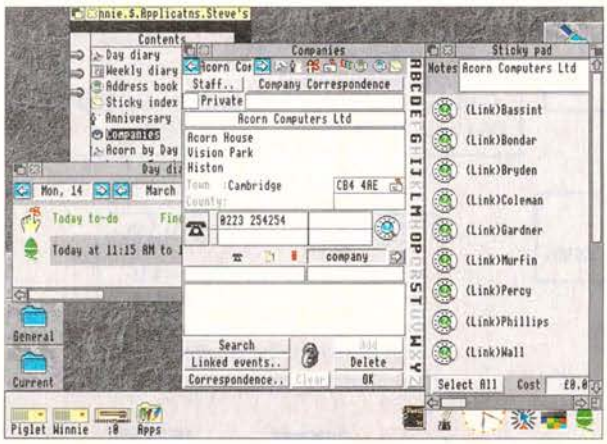
Almanac really needs this to replace Alarm as a full-time resident on my iconbar. But Stallion Software are working on this right now and, in the nature of Almanac, you can be sure it will match the versatility of the rest of the system.

PRODUCT SPOTLIGHT

Product: Almanac 3
Price: £85 (upgrade price £17.62)
Supplier: Stallion Software Ltd, Arundel House, Arundel Road, Camden, Bath BA1 5JX.
Tel: 0225 339090



● *A birthday linked to an address*



● *You can link staff to companies*

Summing up

It's actually impossible to describe everything that you can do with Almanac because it is so flexible. You will be able to tailor it to just what you need and can leave out those sections you don't want. And for such a reasonable price it's certainly worth it.

ARM3 upgrades

All 25MHz ARM3 upgrades increase the speed of your computer by a factor of 3 (typically), and sometimes even more. Acorn's floating point chip, the FPA10, speeds up maths operations previously emulated by software.

IFEL can offer three versions of the ARM3 board;

1) A 25MHz ARM3 with FPA option. This upgrade has a 68-pin socket on the ARM3 board, and the FPA chip can simply be plugged in at any time. **£109.**

2) Standard 25MHz ARM3 without the FPA option. Provides the same increase in speed as (1) above, but does not allow the FPA chip to be added later. **£99.**

3) 35MHz ARM3. We still have limited stocks of these ultra-fast ARM3 upgrades. Some of the most popular Archimedes applications (such as Impression, Artworks and even BASIC V) do not gain anything from the FPA10. So, for those using Impression or Artworks extensively, the 35MHz upgrade is the only logical choice. The last remaining units are just **£114.**

All our ARM3 upgrades use a high quality 4-layer circuit board. 25MHz devices may be fitted to the A305, A310, A440, 400/1 series and the A3000. (The 35MHz part is not suitable for the A3000). Installation is straightforward for the 300 and 400 series computers. A 3-day fitting service is available if required. Please note that the A300 series and old A440 require the MEMC1a upgrade (£25).

These prices apply strictly while stocks last. Our usual money-back guarantee applies to all ARM3 upgrades.

RISC OS 3 £75

Acorn's new operating system for their range of RISC computers. The upgrade consists of four replacement ROMs, utility discs, and manuals.

RISC OS 3 may be used on the A305, A310, A440, 400/1 series, A3000, 540 and A5000.

RISC OS 3 **£75**

A305, A310 and A440 owners please note. You will need to install the RISC OS Carrier Board in order to use RISC OS 3. The RCB may be used with any version of RISC OS. This carrier board is compatible with memory boards, ARM3 upgrades and does not in any way obstruct expansion cards ("podules"). Unlike some other adaptors, the IFEL RCB allows ROMs up to 8Mbit to be used. (RISC OS 3 chips are currently only 4MBit.)

RISC OS Carrier Board **£21**

A3010/A3020/A4000 RAM

These machines may all be upgraded by easy to fit, plug-in components. No soldering is required.

A3020/A4000 extra 2Mb - **£Please phone**
A3010 extra 1Mb (2Mb total) - **£35**
A3010 upgrade to 4Mb - **£125**

All products fully guaranteed. Many products also carry our 14-day money-back guarantee too. Please phone for details.

This month's specials

25MHz ARM3 with FPA option	**£109**
25MHz ARM3 with FPA fitted	**£199**
25MHz ARM3, no FPA option	**£99**
35MHz ARM3	**£114**
Wordworks (CC)	**£31**
Artworks	**£120**

A3000 memory - 4Mb £109

An easy to fit and reliable RAM upgrade. **Gold plated** connectors ensure long term reliability. This upgrade uses a four-layer circuit board as recommended by Acorn. No soldering needed.

2Mb RAM board (upgradable to 4Mb) - **£56**
(This board has high quality turned pin sockets to take an extra 2Mb of RAM (ie 4Mb total). When comparing the prices of other 2Mb boards, check the cost of upgrading to 4Mb later. Some boards cannot even be upgraded at all.)
2Mb to 4Mb upgrade for above 2Mb board - **£63**
4Mb RAM board complete - **£109**

Trade-in offer. When purchasing the 4Mb board, we will give an allowance for *any* A3000 2Mb memory card. Please phone for details.

A5000 systems & memory

A5000 with RISC OS 3, 80Mb hard disc, multisync monitor and ARM3. - **£1219.**
Free 4Mb RAM upgrade included in the price.
A5000, 4Mb and 160Mb hard disc - **£1435**

2Mb memory board (4Mb total) - **£75**
A compact board measuring just 104mm by 37mm, this design fits vertically in your machine. No soldering required. Unlike larger boards, there is no need to remove the disc drive. Four-layer design as specified by Acorn.

Hard disc upgrades

A range of fast SCSI or IDE internal hard discs with a year's warranty, in sizes from 40Mb upwards. Complete systems supplied with all metalwork and cables. 400/1 machines merely require the drive and controller card. 300 series require a backplane.

85Mb SCSI - **£210**
120Mb SCSI - **£199** 210Mb SCSI - **£250**
Fast 16 bit SCSI card - **£100**
170Mb IDE - **£275** 200Mb IDE - **£300**
IDE controller card - **£75**
(add £75 for external version of SCSI discs)

Various

Aleph One 486 1Mb PC Card - **£490 (4Mb £580)**

Free price list available upon request.
Prices exclude VAT.

A300 series upgrade column. 2Mb £89, 4Mb £119

Memory expansion

Extra memory is without doubt the most worthwhile addition to any A300 series machine. Some programs won't even run with only 1Mb, and 2Mb is a bare minimum. Certain applications, desktop publishing for example, benefit from a 4Mb system.

1Mb to 2Mb - £89 **1Mb to 4Mb - £119**

Upgrade from 2Mb to 4Mb (self fit) **£63**

Compatibility. The memory is detected and used by the machine automatically, so there are no special commands needed. Works with both RISC OS 2 and RISC OS 3.

Fully compatible with ARM3 upgrades, backplanes, hard discs etc. This upgrade is supplied on just one, compact board measuring only 195mm by 46mm. Four-layer circuitry reduces electrical noise for trouble-free operation. The 2Mb upgrade may be upgraded to 4Mb later by the user, without any soldering, at a cost of £63. A copy of the fitting instructions is available free of charge.

Is there any other 300 series RAM upgrade wich has been available for as long as this one, and which has the same reputation for quality and reliability? No.

Still not sure? Compare it with the competition before making up your mind. Use our 14-day money-back guarantee to check it out for yourself.

4-slot backplane with fan **£52**
(This is a four-layer circuit board)

Combination deals

4Mb with MEMC1a, self-fit **£143**
Collection of your computer, installation of 4Mb of RAM, MEMC1a, and RISC OS Carrier Board, testing, full guarantee, and return delivery **£189**
As above, but with 2Mb of RAM **£135**
(Add £70 to have RISC OS 3 fitted at the same time.)

Fitting service

Many upgrades are straightforward to fit (eg A3000 and A5000 memory), but others require expertise. We can provide a fitting service for all of our products, usually with a three day turn round. Please ask for a quotation.

A3000. Fitting ARM3 upgrade - **£25.**

Special deals including fitting

A3000 upgraded to 25MHz ARM3 and 4Mb of RAM. Includes carriage. **£225.**
(While ARM3 stocks last).
A310 upgraded to 4Mb RAM, MEMC1a and RISC OS Carrier Board. Includes carriage. **£189.**

RAM for 410 & 420

Upgrade from 1Mb to 2Mb - **£35**
Upgrade from 2Mb to 4Mb - **£70**
Upgrade from 1Mb to 4Mb - **£105**
Supplied with full instructions.

Educational and quantity discount available.

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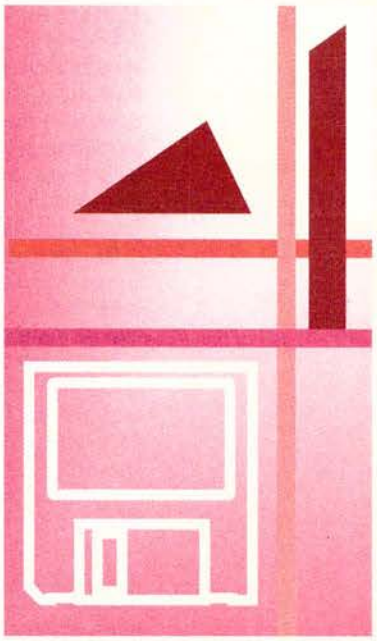
34 Culver Road, Saltash, Cornwall PL12 4DR. Tel (0752) 847286. *Fax (0752) 840029*

VISA

Making a date



Michael Rozdoba asks 'Are you tired, bored, listless?'

WELL so what? Isn't everyone? Which reminds me, I find myself forced to apologise for several typographical and grammatical errors which have crept in to past columns. Although I must humbly confess to making the odd mistake or seven, most of the ones you may have noticed were introduced by someone who felt the need to edit my literary masterpieces.

Back to basics

Getting around to the subject of programming, should you ever need to perform a calculation involving dates, you might find the following of use: RISC OS 3 can often do all the work for you, using a couple of SWIs provided by the Territory Manager.

The real-time clock stores time as a five-byte value. This is the number of centiseconds elapsed since 00:00:00 on January 1 1900, and is known as UTC or Universal Time Coordinated – why, I don't know.

The SWIs *Territory_Convert-Ordinals-To-Time* and *Territory_Convert-Time-To-Ordinals* allow conversion between UTC times and local time ordinals which, in case you're wondering, are just the familiar date and time components such as hours, minutes and seconds. You can read all about them in RISC OS 3 PRM 3-815, 3-819.

Conversions to UTC time take as input a pointer to a buffer holding seven word-sized quantities: centiseconds, seconds, minutes, hours, day in month, month in year and year, while conversions from UTC return the above information plus day of week and day of year.

Thus by converting a date to UTC and then going straight back to local time ordinals, you can discover the day of the week and week of the year for your original date.

What's more, conversions to UTC time will often accept illegitimate dates. For instance, you may give an input date of 32 January. The conversion to UTC and then back to ordinals will correct this for you, returning the date 1 February,

In similar cases you must take some care, as these calculations may go wrong if you specify very large values for the day of the month – say several hundred – such that it would cause a change in the year number.

This method can be used to find a date, given the number of days *n* in a year, by supplying *n* as the day of the month, and January as the month.

The number of days in a given month can be found by using 32 of the month as the input and subtracting the resulting day of the month from 32. For example, 32 February 1996 will become 3 March 1996 and 32-3 is 29, the number of days in February that year.

!ConvDate on the cover disk is a simple demo of these processes. It will ask for a date, perform the conversions and then display the results. Hit Escape when you get bored. It has been written in C and the source code is provided. You ought to be able to follow the crucial bits, even if you don't understand C, as it's so simple.

Unfortunately, there is one major restriction to this technique. Only dates between 1900 and about May 2248 can be handled, as this is the biggest range that a five-byte centisecond counter can represent.

Fortunately, this usually isn't a problem.

Pointing beyond the boundary

When dragging objects around in an editor and approaching the window boundary, the Style Guide requires that the window automatically scrolls to allow the object to be easily placed anywhere in the parent document.

The speed of scrolling should be controlled by the pointer, and the easiest way to do this is to allow the pointer to pass beyond the window and use the offset from window to pointer to control how far the window scrolls in one step.

To let this work for a window which lies next to the screen boundary, the pointer must be allowed to go outside of the visible screen. ArtWorks uses a method like this and it works fine. However, if you try to write similar code and use *Wimp_GetPointerInfo*, you will encounter a bug in RISC OS.

For returned pointer coordinates *m.x* and *m.y*, if m.x is less than zero you will find that *m.y* is always returned as being one pixel below the line *m.y*=0, regardless of the actual coordinate.

This can be worked around. *OS_Mouse* will return usable coordinates, though you should be aware that it always brings coordinates back into the visible screen, and unlike *Wimp_GetPointer Info*, doesn't round them to the nearest pixel.

Stop me, buy one!

Don't forget, 42 may be the answer, but we have yet to discover the questions. If you have a question, it is your duty to society to write in, so do it NOW.

To: TechForum,
Acorn Computing,
Europa House, Adlington Park,
Macclesfield SK10 4NP.

And that was

Mike Goldberg continues his look at rain, hail and snow

WELCOME et bienvenu (well, that tunnel should be open by now) to part two of our weather chart. Well, things are looking a lot brighter since last time and the bugs have been ironed out, leaving us with a bright and animated display of the weather conditions on any particular day you choose.

Yes, I've added a range of options so you can now alter the date and save all the screen data as a file that can be loaded back at any time.

Instead of creating one big file of say, a year's length, each day's data is stored per file so that it reduces the time it takes to load a huge file should you wish to edit some data. Anyway, load in *Weather2!* and have a look at the prevailing conditions.

As is usual when writing part two of a program, you can immediately see what a shambles part one looks like and set about tidying it up... and as is the nature of tidying, once you start where do you stop?

As a consequence I rewrote various chunks of code and made the printing of icons to the screen neater and swifter. To be fair I don't care how much planning anyone puts into a program, it's only when you think you have completed it that you see how it could have been written easier or better.

The first difference you will notice is that when selecting an item the icon no longer has a square background when fixed to the screen.

This leaves more background showing, therefore helping to place the icons more accurately and I should have done it to start with. Now try the Gales icon. There's a few more that are animated now and here's how to add more of your own.

Each animation consists of four frames 0, 1, 2 and 3. If you wanted to animate the hail call the first sprite *Hail_0* the second one *Hail_1* and so forth.

You must include the _ sign and the number but you can call the rest of it any name you like as long as it is the same for all four sprites and of eight letters or less.

So, create four sprites of how you think hail might look as it stings your face and save the whole *MAPS* spritefile again. Now load *Weather2!*. Just a couple of things to do now. Locate the procedure DEFPROCsprites between lines 600 and 850 and in particular the FOR .. NEXT loop between lines 780 and 840. This is where to add your latest animation. Look at any of the examples already coded and add your own at any non-used line number between 780 and 840:

```
PROCsetsprite("Hail_"+STR$(I%),acti
on%(21,I%),w%,h%)
```

- **Hail** is the name of your sprite. Note that you just have to put the name and the _ but NOT the number between the inverted commas.
- **21** is the number of your sprite that is printed next to the weather condition at the top of the map each time you select an icon from the iconbar. Make sure you get the right one.

That has informed the program about your new additions. Now alter line 2050 in the procedure

● *A typical summer's day in Britain*

● *The weather when I was born*

the weather

DEFPROCfixed. This is the line that starts WHEN 4,11,16,20 ... All you do is include the number for hail which is 21. It doesn't matter where in the sequence it appears, just as long as it does.

Now save the program – preferably with a different name – and run it to see what you have typed in wrong (well I always do). Now run it again, select the hail icon and watch your latest animated masterpiece.

As mentioned before, the actual icons that fix to the map now have masks, allowing the background to show through. These are the same sprites as the iconbar ones, but with masks, and are called *STATICn* where *n* is the icon number.

If you haven't any animated sequences for an icon these static icons will be printed by default – if there are animations it will override the static image.

Loading and Saving a weather map is straightforward and to make it easier for you, here's a list of the keys:

L = Load a saved file
S = Save a weather file
D = Alter date of weather
R = Restart whole weather map

MOUSE
Select = Select icon from icon bar/Fix icon to map
Adjust = Unfix icon from map

Pressing the D key at any time allows you to enter the Day, Month and Year all as numerals. If you forget to alter this when you save a file don't worry, as you can alter it when you load it back in – assuming you have used a meaningful name for the file.

Using Adjust with the mouse will deselect any fixed icon, but if you've made a hash of the whole thing then it might be quicker to press R and Restart. Try not to hit the R key by mistake and yes, I should put a failsafe "Do you really want to do that" but, quite frankly, life's too short.

One unfinished feature – unless the Editor's feeling beneficent (*Life's too short. Ed*) – is the absence of any error detection in case you try to load in a non-existent file.

So that's about it. As the program stands, it will serve to keep weather records in a general way and is good fun to mess about with just to watch the animation.

Okay, so I'm easily pleased. It could always be enhanced with wind direction and actual temperatures but not everything has to be measured so clinically and precisely. Sometimes it's enough to know that **that was a hot day.**

● ...and after

● Before...

● How the weather reacted when my wife was born

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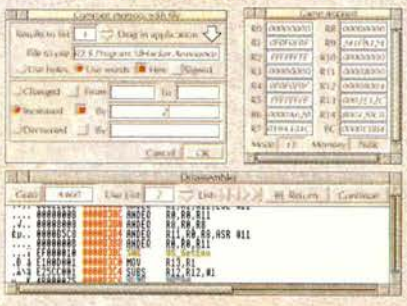


Smoke me a kipper — I'll be back for breakfast

Teri Paul takes a look at the weird, wonderful and sometimes useful Public Domain

PUBLIC Domain is a cosmopolitan world and one where you'll find something for work, rest and play. It also has a wide selection of what may be termed the *unusual*, aimed at the *anorak* or *freak*.

The latter is the term in Germany for enthusiasts of all sorts – I haven't had an anorak since I was six... Anyway this arena is the natural home for the latest set of disks from Gem PD.

The Red Dwarf inmates Lister, Rimmer, Cat, Holly and, of course, Kryten have made an impact on TV with award-winning special effects and by entering that slot in the British psyche allocated to HitchHiker's Guide, Dr Who, Star Trek and programmes of a similar ilk.

If you'd like to hear your computer spouting the immortal words of the dynamic Dwain Dibbly and friends, Gem PD have just what you need – *with* the approval of the BBC and Grant Naylor Enterprises.

With more than 10 disks you can access graphics in high and low resolution – state which when ordering – as well as samples of music and speeches made by the crew. I'd opt for the higher resolution sprites if you want to use them in other applications, as the lower ones are somewhat grainy.

I particularly liked the utility on Disk 4 called RedError, which changes the Acorn's error bleep to one of five quotes from Red Dwarf.

The samples are a little woolly and could do with a bit of tidying up, but they do sound better from a speaker/amplifier than from the internal speaker. The samples appear randomly and a little judicious moving around can ring the changes.

When first loaded the samples ran too fast. You can change the speed using the *Tuning command. For instance, press F12 and type:

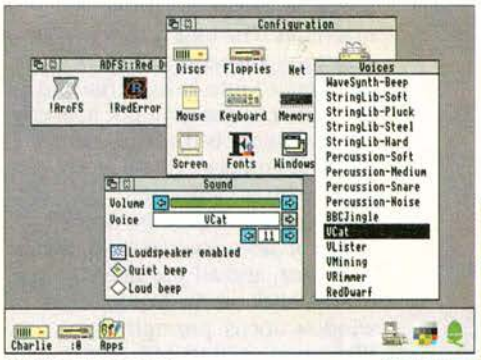
`*TUNING -&1000` – To run the sample an octave lower
`*TUNING +&800` – To run the sample half an octave higher

When you have decided the right setting, you can add this line – less the * – in your !Boot file. However, I did find that this did need tweaking from time to time.

The price for the full set is £9.99 with profits going to the Wessex Children's Hospice Trust. Do register as more information is promised and there is a bounty out for any Red Dwarf material. Send Gem PD a Red Dwarf product that they haven't got and you'll receive a free disk of programs.

Every disk which has sound samples on it has a copy of ByeByeMod, which is an easy way of removing the sample from memory and freeing memory on your computer.

However, 1Mb users will still find their room for manoeuvre restricted. By the way, don't use ByeByeMod if you have other applications loaded – such as Impression – as you'll lose that too.



● *What have you done to the sound on your machine*

● *Holly introduces the team, one by one*

● *The images may be mono but they capture the atmosphere of the programme*

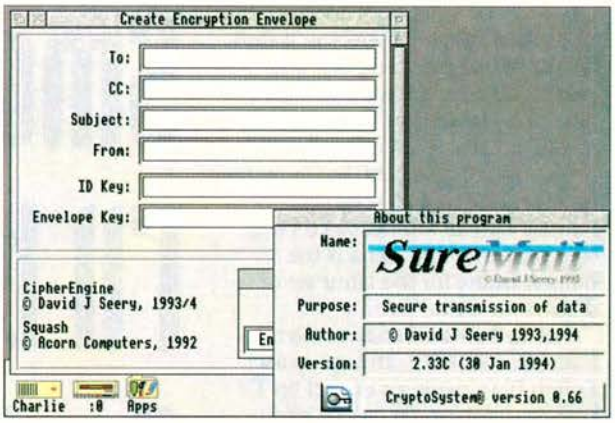
For your eyes only

David Seery's been on good form this month with updated versions of TrashFS 0.70 and PlayTrack 1.07a. On the shareware front he has produced SureMail.

The size and complexity of the code require a £5 registration fee, but for this you get the source code, a few examples, a manual on disk – detailing all the SWIs in the module – and some other goodies. He has also written a rather nifty ordering program.

SureMail contains the CipherEngine module, providing encryption and compression utilities for RISC OS computers. It will work on both RISC OS 2 and 3 but you have to make sure that the Squash module – which comes as standard with RISC OS 3 – is loaded.

In total, SureMail provides archiving and encryption suitable ➤



● *Encryption needn't be as complicated as it sounds*

➤

for e-mail, as it calculates digital signatures for all files archived and checks against tampering as they are de-archived.

But CipherEngine doesn't necessarily have to be used for encryption as it includes SWIs for squashing whole directories and single files, and is used by David in his TrashFS utility.

SureMail is loaded in the usual way and can be used for encoding sensitive data for instance, not just e-mail uses. SureMail uses the idea of an *envelope* in which you enclose several files into one, each *letter* being *signed* with a digital signature. The envelope is then sealed/encrypted.

The user guide takes you through the stages step-by-step and SureMail has two levels of encryption, the keys to which are set by the user.

One is a single letter ID for protecting the details fields and the second is a key to the envelope which can be up to 16 characters long – giving 2^128 combinations, according to David, and taking about a trillion years for an Acorn computer to crack it, trying every single combination until one is found that works. Combinations are case and space sensitive.

Files are compressed en route and when you've finished they are encrypted. The process is quick, taking about 10 seconds for each 100k. Of course the faster your ARM the quicker the process.

Depending on your reasons for creating the envelope in the first place you can put the resulting file on disk or send it on its way down the phone line.

When it comes to dearchiving, load SureMail and the envelope by dragging or double-clicking. You'll be asked for the passwords and decryption will commence. If you have suffered from a *dirty line* the envelope may not unpack. I always think that a good precaution is to send a couple of copies of a file just in case.

Another useful safeguard is to copy the envelope and then begin decoding. Should anything go wrong while decoding you still have the original to use again. Also, after decoding the envelope is useless – another security measure – so I suggest that you make a copy of it first and then try decoding the copy.

The details of who the files are from, for and about what will appear and you can now save the files out one at a time until there are no more left.

The save box then vanishes and the envelope is securely deleted – overwritten seven times with null bytes and removed. Files deleted in this way cannot be recovered, even with the use of sophisticated software or hardware.

If you only want to send one file there is a shorter method available – just drag the file to the iconbar and drag the file icon to the appropriate viewer and all the envelope creation is done for you. Unpacking is as before but you must use the longer method for more than one file.

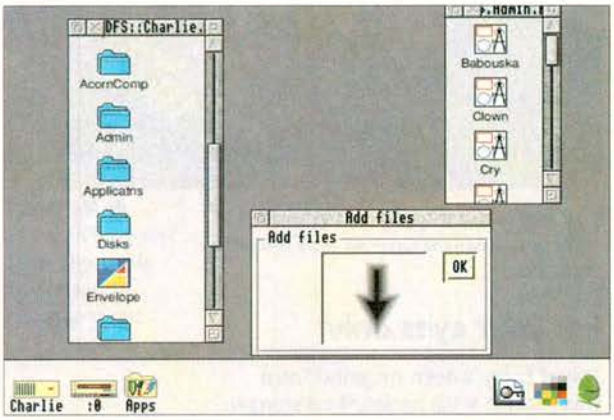
The whole system is very simple and straightforward to use, as well as being quick. I should think that everyone would be able to make use of this utility at some time even if you don't delve into the nuts and bolts of the CipherEngine itself.

SureMail uses the Self Extracting Archive (SEA) which has not been implemented before on Acorn machines. The idea is that the file or directory you want to archive is compressed into a single file and encrypted, as for envelope archives. The difference is that they can be decoded and dearchived many times with no separate decompression software needed.

The archive decodes itself, hence the name, and all you need to do is double-click on the icon. A save window opens, prompting you for a filename and password. You then save in the normal way.

SEAs can store directories and reconstruct them properly unlike envelopes. Full details of this and digital signatures are in the documentation which of course you only get when you register.

● *Just follow the clear on-screen instructions*



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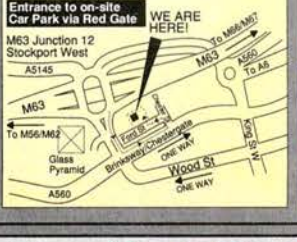

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APR 94

● *One of your miners runs trustingly to a watery death*

Diggers

...a delving we will go

THE latest 16-bit games house to take a dip in the Acorn pool is Millennium with Diggers – last seen on the Amiga CD-32. Now this didn't lead the way with its graphic innovation but it is a good arcade adventure which grows on you the more you play. It's huge and definitely good value for money.

The gameplay made it a winner on previous platforms and Andrew Hersee has done a good job of the conversion. The polish is all you'd expect from a conversion – good music and nice opening screens, which leave you right in the game and ready to play.

As you are controlling a variety of tribes of diggers and delvers you might feel you want to compare this to Lemmings – don't. There is more strategy than cute here.

You must increase your tribe's wealth to be able to leave for another zone, but you will need to sell the gems you've found to up the ante to move on, though you may want to gamble on buying some extra equipment to increase your output.

Why do you want to mine? Well you don't. It just happens that you landed on the planet Zarg on the Glorious 412th. Rather than shoot anything feathered that moves, you can just watch the diverse tribes on this arid planet as they mine like maniacs for a month.

PRODUCT SPOTLIGHT

Price: £29.99
Supplier: Millennium, Quern House, Mill Court, Great Shelford, CB2 5LD.
Tel: 0223 844894

Their goal is the Zargan Mineral Trading Centre. On the other hand if you can't beat them ...well, you never know you might make a fortune.

Your first visit is to the Trading Centre where you select a tribe to lead and region to mine. They will follow your every order – where to walk, run, dig, what to collect, what to leave and when to return to the capsule and Trading Centre to sell the gems. You can then add the money to the kitty or buy extra equipment.

Now there has to be a catch – in fact there are several. Not only are the other tribes antagonistic but they are mining in the same regions and won't feel too upset if they put one of your miners out of commission, even permanently.

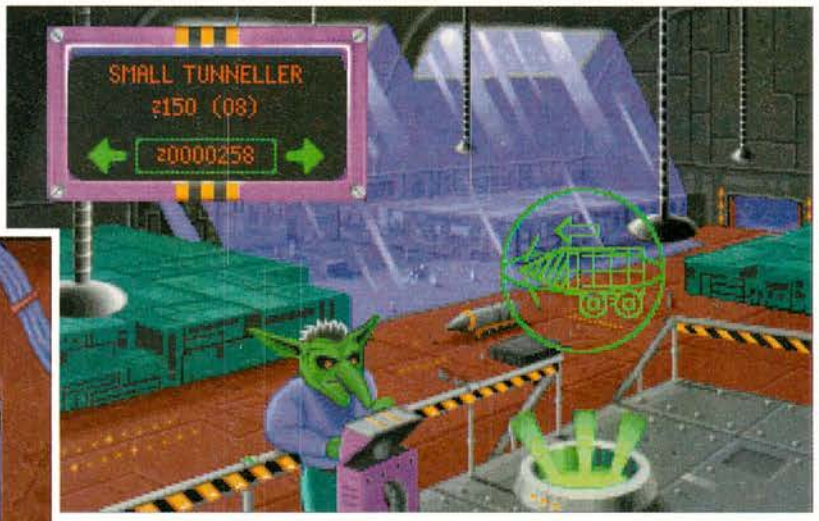
There are also a selection of nasties inhabiting the regions such as humanoid-eating mushrooms, will'o the wisps, skeletons and ...well I'll let you

● *Perhaps I'll opt for the Habbish next time*

● *Gems, fossils and, on top, a rather dangerous mushroom*

Next month

MAKE sure you reserve the May issue of Acorn Computing today. Not only will we have the full low-down on the latest news from Acorn, but you can get your very own version of Diggers on the MegaDisk.



● *A small tunneller – just what the doctor ordered*

● *Perhaps it's time to cash in my Zs*

find out for yourself.

To help, you can buy explosives, mechanical diggers – large and small – floodgates, First Aid packs, trains, tracks, bridges, boats, TNT maps, corkscrew diggers and lifts. These will give you some idea of what you're up against.

To start with, the parties to my left were making a better job of mining than I was, so watch the computer-controlled opposition and learn.

As always it is the small touches that make a game special. The tribesmen may be small but have a character of their own. The trusting way they run into doom – while you are trying to negotiate a rock fall with one of the others – is enough to bring a lump to your throat.

Watch the amounts they are carrying – the icons to the far right will tell you the state of play and you can always transport them back to their vehicle to dump their gems. Do buy mechanical miners as they become almost another team member, as long as you only want to mine from left to right. I particularly enjoyed using the explosives, but be careful before you click on that detonator.

Diggers will have a lot to offer any games player and considering the trend of some recent games, I'm pleased to see that it will work on 1Mb machines and only comes on three disks. If you've got a 1.44Mb drive you can get this down to one disk or you could always pop it on to a hard disk.

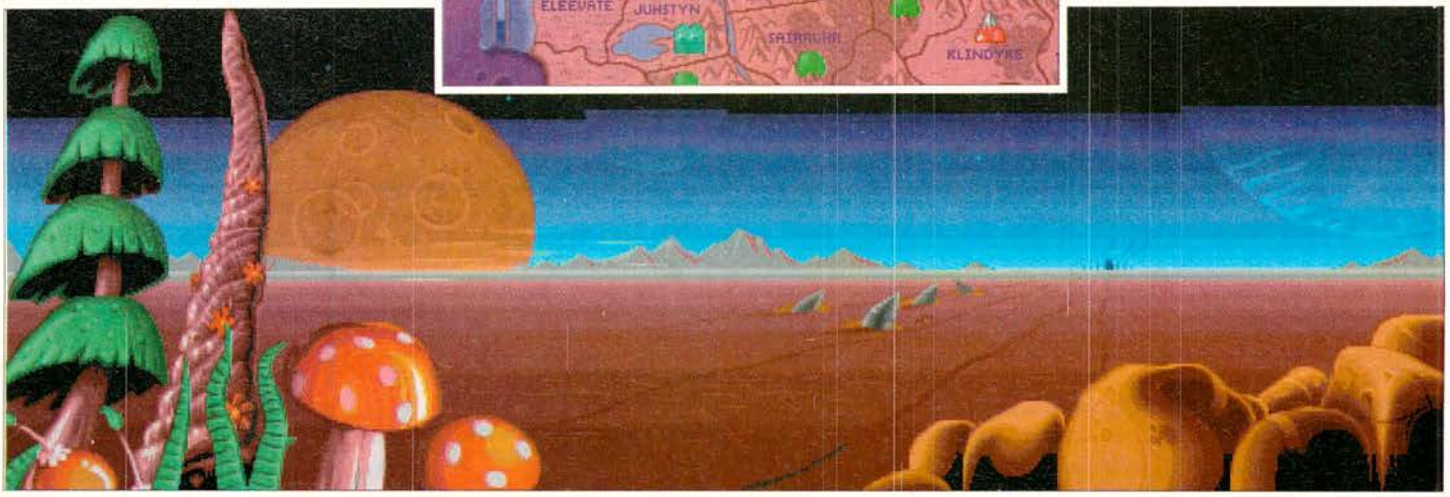
My considered opinion? The more you play, the more hooked you get, but as you can save your position you need not starve. The Acorn machines could stand more such games, go for it.

Teri Paul

Acorn User Show, Harrogate

IF you fancy a little *three dimensional* digging then pop along to the Acorn Computing stand. We have an exclusive Diggers Competition, with T-shirts, games and goodies on offer for the people who manage to delve enough gems out of the Sand Trap. It's free and it'll be there all weekend ...are you game?

● *Part of the mining map which is yours to explore*



● *The planet Zarg – as you'll never see it again*

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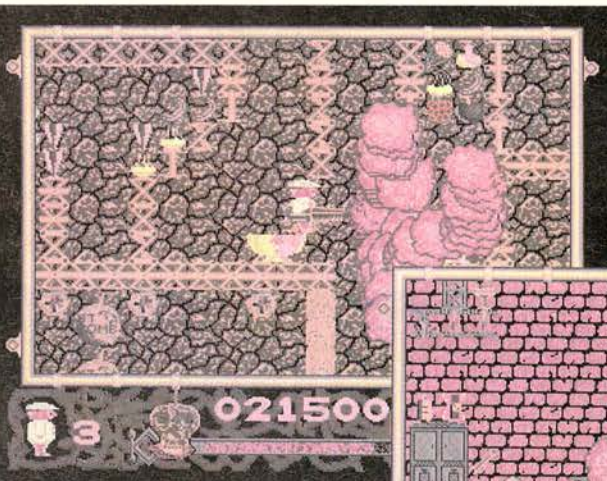
Asylum

A platform shoot-em-up in inner space....



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Speedball II

...American Football gone bananas

IT'S rough, it's tough and the players wear body armour – Speedball II has finally made it. Take American Football as it is today, reduce the number of players, shrink the ball to the size of a tennis ball and make it metal, put the players into metal body armour and put both teams in an enclosed metal arena, add power-up tokens, ball-teleporters and pinball lights – and you get something that resembles Speedball II.

At the pure game level it's a simple matter of keeping possession of the ball and throwing it through the opposing teams goal – but then simple it isn't. The whole thing runs at an outrageous speed and if anyone gets in your way you can pummel them into the ground – before they pummel you that is.

There are no rules about player position, apart from the goalie staying within his goal area, although the teams are organised into attack, midfield and defence groups.

As is usual with this type of game you control the player who is nearest the ball, while the computer controls the others and tries to put them in the best position based on their individual intelligence.

Which brings us to the players individual statistics. Your team, Brutal Deluxe, consists of a squad of 12 players, nine team members and three subs, each of which has eight attributes. You also get a starting balance of cash which can be used to increase your players' attributes on an individual, group or team basis. You gain money by winning and picking it up as tokens during a match.

Once on the field the statistics affect how the team member acts and reacts. Intelligence affects his choice of field positioning while speed controls how quickly he can get there.

I mentioned power-ups, well these appear on the field during play and temporarily increase attributes and armour. Of course it's questionable whether you should go for them or stay on the ball – preferably both.

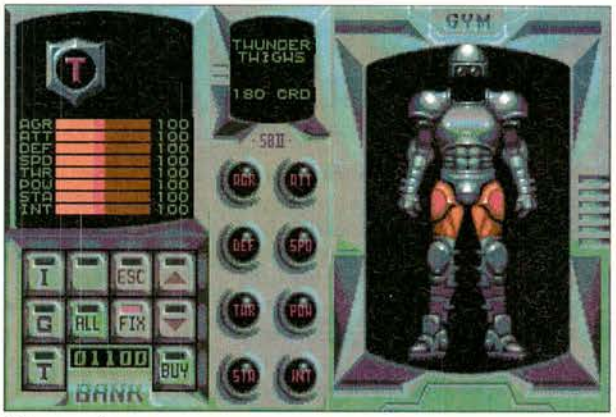
Apart from the power-ups there are tokens that do other strange things – must be controls built into the armour. There are effects which increase and decrease stats throughout the whole team like speeding yours up, slowing the opponent down, freezing your opponent completely or confusing left and right movements (reverses the controls).

Other tokens can transport the ball to your centre forward, put a door on your goal (wonderful) and then there's *Manic* which increases the stats of *all* the players to maximum.

But there's more to Speedball than just playing a match in the one-off knockout matches. When you take control of Brutal Deluxe they are in the second of a two division league and the season is about to start. So it's up to you to get them to the top of the first division.

In addition, in one-player mode you can play a short knockout tournament consisting of two legs and a decider if matches are drawn. There's also a very handy practice mode which has all the elements of a standard game – except for the fact there's no opposition.

Just to complete the management side there's a transfer list where – if you can afford it – you can pick up star players and transfer them to your team. But someone else has to be transferred off because you can only have 12 team members at any time.



● *Increasing attributes for the team*

For a mouse-driven computer the controls are pretty awkward, being based round joystick control which is, by default, transferred to the keyboard. But essentially you use up/down/left/right keys to highlight an option then fire to select it. It's not hard but the first step is always to redefine the keys from their rather strange initial setting.

During the game the fire button/key has four effects: If you've got the ball it means throw it, if you haven't it means tackle – bear in mind that tackling in this game means inflict a lot of senseless violence on the ball's possessor. If the ball is on the ground it causes the controlled player to slide, whereas if the ball's in the air he will jump for it.

Violence and mayhem has its place and in this case it's firmly in the arena, there's a lot of it and it's *fun*.

Lazarus

PRODUCT SPOTLIGHT

Price: £29.99
Supplier: Krisalis, Teque House, Masons Yard, Downs Row, Moorgate, Rotherham S60 2HD.
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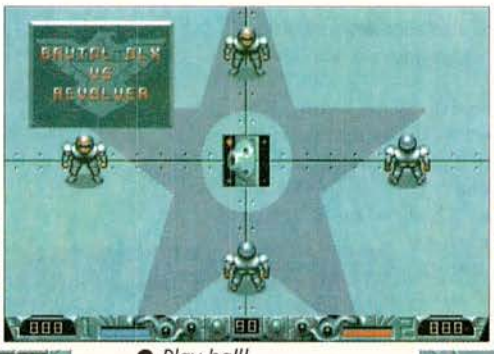
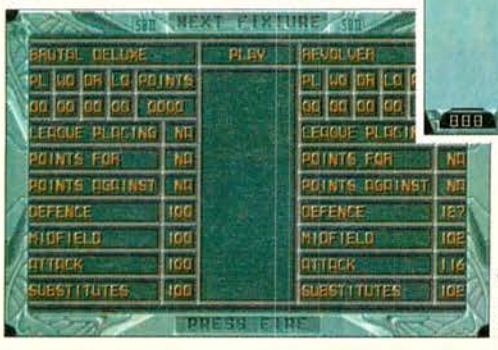


● *Play ball!*



● *Checking out the next fixture*

● *The graphics are very effective*

● *Time for a bit of editing and design*

KV

...egg-napper extraordinaire

PRODUCT SPOTLIGHT

Price: £15.00
Supplier: High Risc Software Developments, 51 Mostyn Avenue, Syston, Leicester LE7 2ET.
Requirements: RISC OS 3

KV IS one of the latest platform games to appear in a growing market. It is set at the budget end of the scale, but compares favourably with the full-price ones currently available. The idea is to collect the eggs on each level while avoiding the dragons that guard them. The levels have to be completed within a set time, or KV is turned to stone.

Considering the price, KV is of unusually high quality. It installs itself on the iconbar along with a level designer, more of that later. When you first play, you would be forgiven for thinking that it was aimed at younger players. But the levels get progressively harder and it grows on you.

Each level has its own password so that you won't have to battle your way through the starting levels every time. This also comes in useful when you get stuck on a high level – you just keep on trying until you finish it.

The graphics have a certain appeal due to their cartoon-style simplicity. The emphasis seems to be on cute. An example is when KV uses a balloon for safe landings – but at least it doesn't pretend to be anything state-of-the-art when it isn't.

The sound is the best feature. There are eight varied pieces of music to choose from, and these should appeal to most tastes. Also included are some digitised sound effects, but nothing is overdone and it all blends together very well.

But what makes any game is its gameplay, and KV has plenty of it. It is very addictive. Once you've played a few levels, you'll be hooked. It has that something that makes you keep coming back for *just* one more go, which usually means the rest of the day...

Also included are bonus eggs that appear in the levels at random. The one that takes you to the next level is very useful, and prevents too much frustration. But beware – there are also eggs that cause instant death.

Should you happen to complete all 100 levels, there is also a level designer. This, curiously enough, allows you to design your own levels and is great as it makes for a potentially unlimited game.

However, it is a little tricky to use, but as long as you follow the instructions there should be no problems. KV is a very hard game to criticise. It seems the programmers play-tested it to death before release and they did a very thorough job.

Anything that might cause a problem has something to counter it. It is this attention to detail that sets it apart from other budget releases.

There are some points which could be improved upon. The main one is the fact that the screen doesn't scroll so the actual playing area is quite small. Secondly, the game can get quite boring should you complete too many levels in one go.

But, for all their thoroughness, the programmers missed one thing – they mis-spelt the word *Return* in the menu screen. But that won't matter too much as most people probably won't notice anyway.

KV is more than just an ordinary platform game. It has plenty of levels to keep you occupied, and great sound which improves gameplay immensely. You can also make up your own levels, which should provide almost as much entertainment as the game itself.

Overall, KV has to be one of the best bargains around. It is a great game at a low price and will keep you going for ages. Buy it.

The Mik

Hermes

...messenger of the gods

IT IS good to see how a steady trickle of budget-priced leisure software is being offered for Acorn 32-bit machines, and I therefore welcomed the chance to look at Hermes.

Written using the GTAC utility, Hermes has a simple enough story-line – there's been a bit of trouble up 't mill (well, Olympus, anyway) with nasty Titans throwing things at boss deity Zeus' throne.

Fed up with these contemptuous actions, Zeus summons you, (cast as Hermes, the divine gofer) to call Tiresias who is the only person who can set Cyclops free. Once free, the one-eyed wonder will tame the Titans.

The game installs on to the iconbar and is run entirely with the mouse. The screen is divided into three windows – text at the top, a smaller action window in the centre and a graphics window at the bottom.

Command options are limited to those displayed in the action window so, while choice is always limited, at least we know what the options are going to be. There's no call for frenetic inventiveness as the player tries to second-guess the game writer.

PRODUCT SPOTLIGHT

Price £14.95
Supplier: Arch Angel Software, PO Box 41, Exeter, EX4 3EN.
Tel: 0392 422759

You start at the foot of Mount Olympus with the choice of exploring a deserted plain or entering a forest, and from then on you are steadily taken along a path of branching options, while you endeavour to make your way to Crete where Tiresias will be found.

● *The dark holds both dangers and opportunities*

There are some nice chaining puzzles, some nasty encounters and a few brain teasers. Aimed at younger players, particularly those new to adventuring, Hermes fits the bill nicely.

As with all adventures, careful exploration is desirable, pretty girls like flowers and surprises lurk round corners. One tiny gripe: I had to import the !System folder before I could run the game – I'm lazy – that should have been done for me. A nice piece of fun, though.

Mad Hatter

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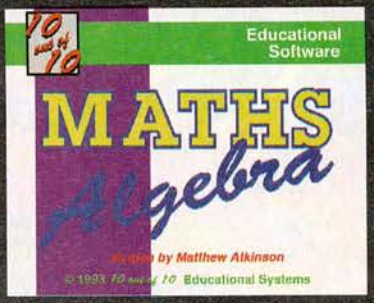

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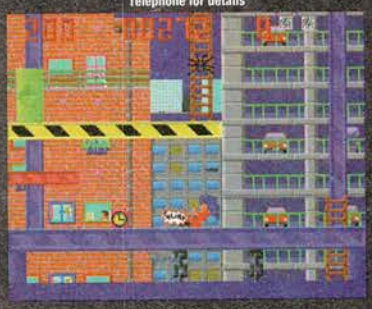

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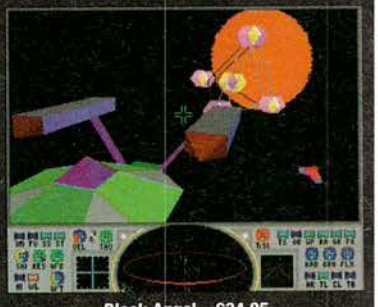

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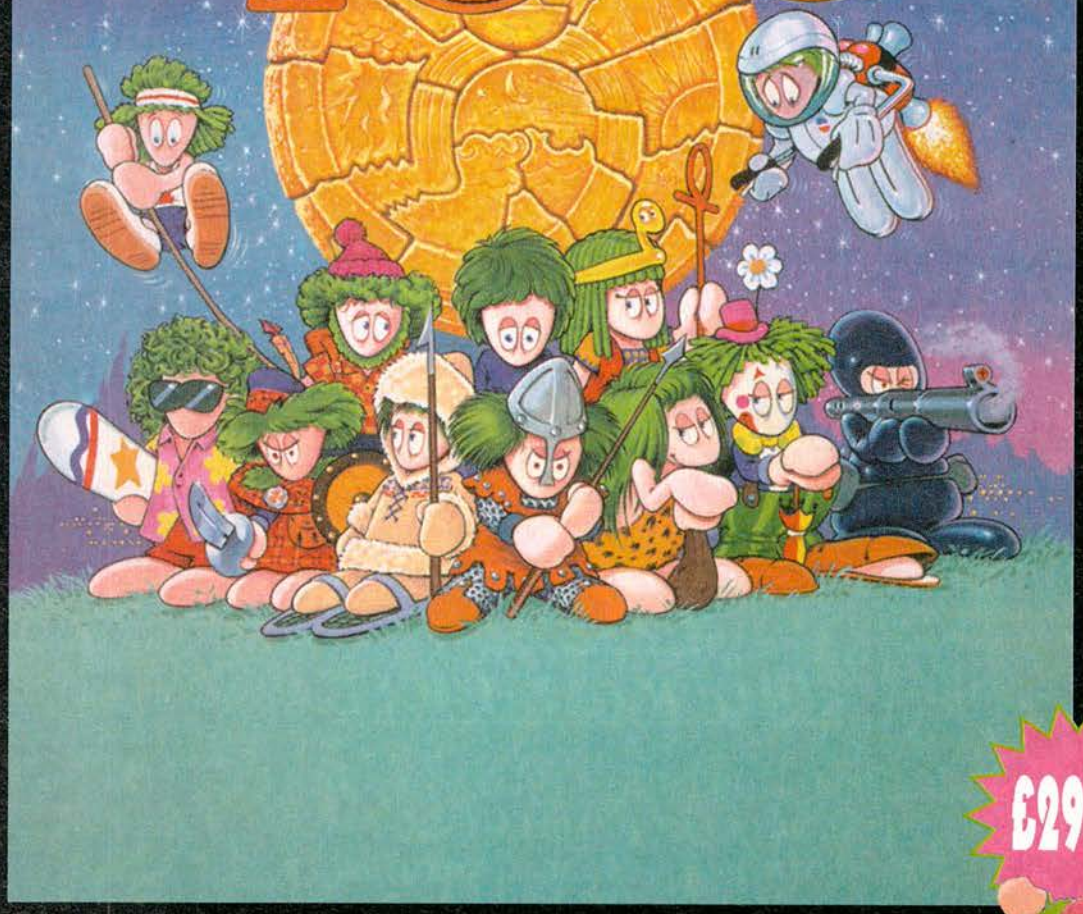
Lemmings 2 TM

The Tribes



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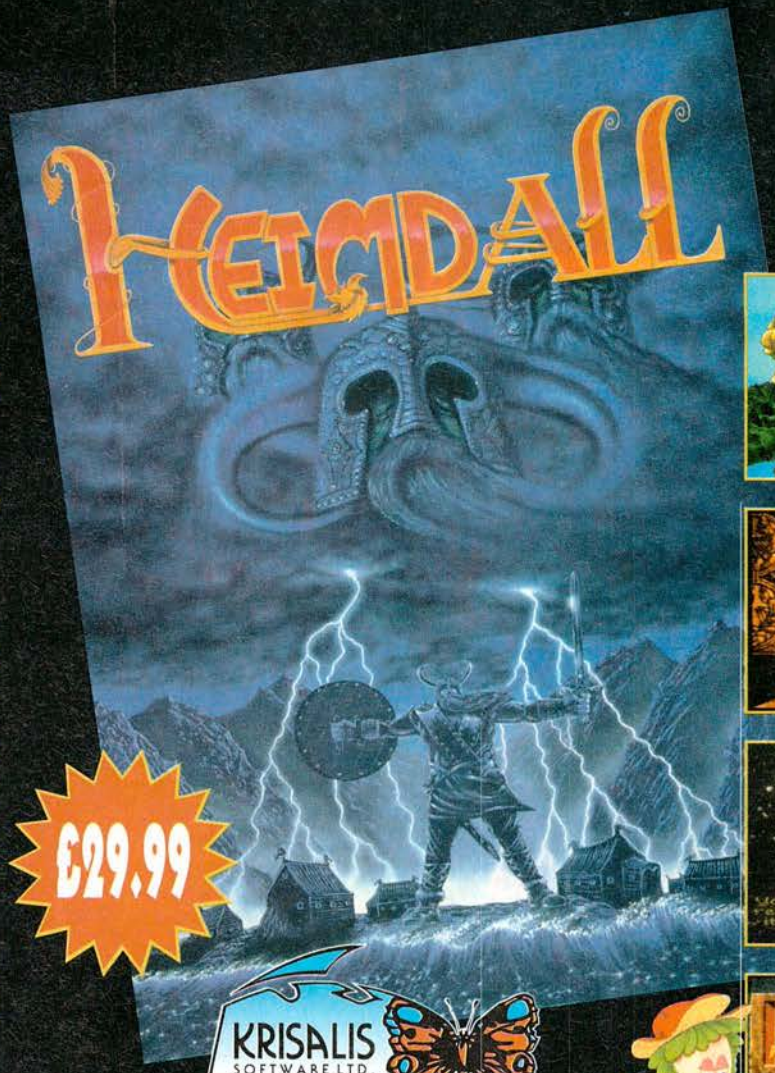

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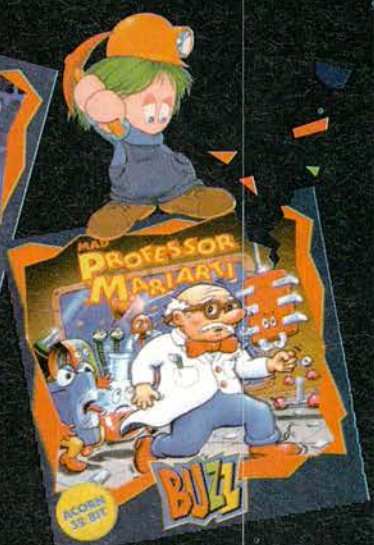

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THE DATABAY

Hal gets showered with news, tips and cheats

AS the Spring Show in Harrogate draws closer, Acorn owners all over the country begin to check their bank balances, and games enthusiasts ponder over which new titles to purchase. Although the Archimedes games market does seem to be picking up speed, the sudden flood of converted software that many people were hoping for has never quite arrived.

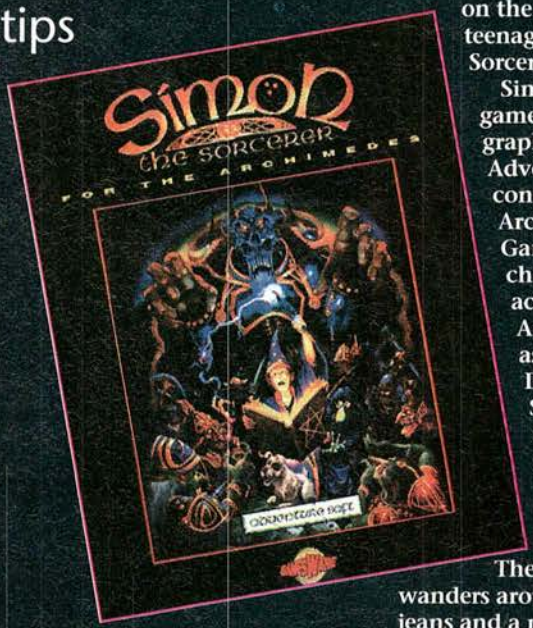
Tim James of Krisalis Software offered me an explanation: *In selecting titles for conversion we have two initial problems to overcome. Firstly, will the original developers release their source code, and secondly will the sales of the product outweigh the cost of the conversion?*

Usually, the more unique the original program the more reluctant the original developers are to release their source code. This is the prime reason that a Microprose flight sim has yet to find its way on to the Acorn.

Our original titles were conversions of early Amiga and PC classics and therefore the original coding was relatively simple. However we are beginning to reach a point where the original codes are so complex that the sheer amount of programming time involved is making some conversions not viable.

For example, Heimdall took the best part of a year to convert while Lemmings II has over three times the amount of coding as the original.

However, Acorn games companies are battling on undaunted. Some ground-breaking titles have been springing up in the last few months, including a game based on the experiences of a teenage wizard – Simon the Sorcerer.



Simon is an adventure game with fully animated graphics, written by Adventure Soft and converted for the Archimedes by GamesWare. Designed to challenge the acknowledged American greats such as Monkey Island or Day of the Tentacle, Simon the Sorcerer has been filled with quirky British humour, guaranteed to give you a chuckle.

The main character wanders around in a purple cloak, jeans and a pointy hat and fires off barbed witticisms at anyone foolish enough to get in his way.

Even though it was in an unfinished state, Simon earned unanimous approval from the GamesWare team when they saw it last summer, and they set themselves the task of converting the program for Christmas.

Unfortunately, the deadline for the PC version slipped, which meant that Adventure Soft were only able to release the source code two weeks prior to the Acorn World show. There was just enough time to produce a demonstration, showing Simon to the public in all his glory.

Simon the Sorcerer is not a small game – it is supplied on nine disks – so Richard Jelbert, the Technical Director of GamesWare, faced a particularly challenging task.

The development was split between five top programmers, each working in their own area of expertise. Rob Wyatt, the project leader, was assisted by Neil Littlejohn, James Callan and Glen Peggden. Jason Tribbeck advised on the music and Keith Martin helped fit the data across the nine disks.

The team approach allowed ideas to be bounced around between members and problems to be solved together – modems were invaluable in allowing the programmers to transfer code quickly all over the country, avoiding the eccentricities of the postal system.

The eight data disks were the first to be completed – this meant that they could be duplicated prior to the completion of the full game.

It was then just a matter of pulling the separate pieces of the game together, and Preston in Lancashire became the epicentre of a coding blitz as the GamesWare team converged there to bring Simon the Sorcerer to life. It's now undergoing a few final tweaks, and should be hitting the shelves very soon.

In order to find out more, I managed to catch Rob Wyatt and James Callan between tweaks and put a few questions to them both.

HAL: What do you think of Simon in comparison to the other graphical adventures about?

James: *Er, it may sound a bit silly, but I don't really play many computer games. However, I was impressed by Simon – it's a type of game that's new to the Acorn market, and I think it will catch people's imaginations.*

Rob: *The animation in Simon is superb, better than a lot of similar games on the PC. It doesn't quite*

beat a game based on CD-Rom, but then they can use actual video clips.

HAL: What was the hardest bit of the conversion?

Rob: *Lots of it! Nothing of this size has been attempted before. We did have difficulties converting the colours used on the PC to the 256 colour palette on the Acorn. For instance, when a burning fire is shown on the PC, it simply changes the palette to alter the brightness of the flames – we couldn't do that on the Archimedes.*

James: *We had to write our own turbo-charged version of Colour Trans to choose the best colour available from the information given in the PC palette file.*

HAL: Is Simon's appearance likely to make other graphical adventure games appear?

James: *I think more will filter through, if not all at once. Personally, I'm sick of platform games – they're all variations on a theme, with different characters running around. The Acorn market is crying out for games of this type.*

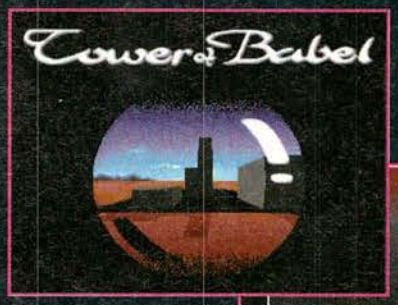
Rob: *Nothing's certain yet, but there are a few games based on the same adventure engine, so it might be possible to produce conversions with the same release date as the PC.*

Thanks to Rob Wyatt, James Callan and all the others at GamesWare, and keep reading this column for a few hints.

Pocket passwords

Many thanks to Nathan Atkinson and DO Paisley for the codes to Magic Pockets.

4736, 2663, 2175, 4151, 5226, 6924, 1520, 4589, 1265, 2571, 2437, 6961, 5465, 9318.



● *The MegaDisk has a treat in store for Babel fans*

Hint helpline

If you want to see more of Lemming Island in Lemmings II: Tribes, try this cheat. When the main menu screen is displayed, use the mouse to click in the four corners of the screen, starting at the top left and travelling clockwise. You should hear a lemming shout *Let's Go!* and from then on you will be able to access any level upon the island.

I have received a plea from Matthew Anderson in New Zealand. He owns a Master Compact and is having a couple of problems. He keeps getting killed after teleporting to the palace in Citadel, and although he has found two crowns in the well, he cannot find the third.

As far as I can recall, the third crown is hidden in the first room in the witch's house, but that particular memory bank has been playing up recently so I am ready and willing to stand corrected.

Matthew is also stuck in the black room on Level 6 of Last Ninja 2 and is having some trouble with level 5 of Ricochet. If you can help in any way, please drop me a line and I'll pass the information on.

Finally, Robert Cooling has discovered a loophole in Xenon II which can be quite profitable. Simply sell all your equipment when you reach the shop and purchase the nashwan power. When this runs out, all your old weapons will be returned to you, and you'll still have the money you earned from selling them.

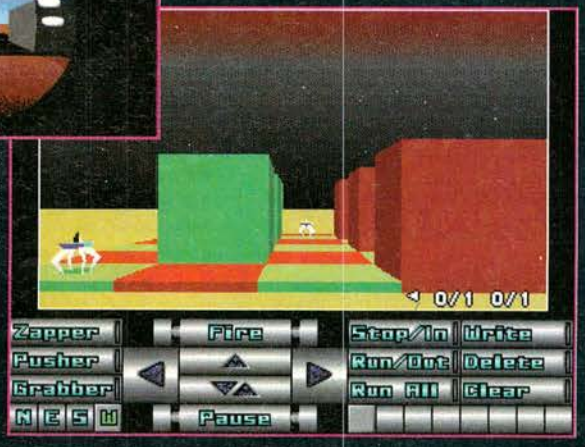
End of file

Thanks for all your contributions – please keep sending them in. For all of you who enjoy the aroma of smouldering rubber, I'll try to squeeze Liam Gretton's Stunt Racer 2000 file editor into the next Databay.

I know it's been a long time, but all you Exile fans will be pleased to know that Dan Doran's solution will be serialised again in the next few columns. Keep playing, and I'll see you at Harrogate!

● *That nashwan power may cost 600 credits...*

● *...but it's an absolute steal – literally*



Phaethon Power

Continuing from the codes printed in the last Databay, Andrew Clover presents us with the complete lists for the remaining groups.

Mazes:	Puzzles:
RPENTOMINO	LIKETHESFX
PSYCHICDOG	COLDPLANET
APPROX2065	GRAPEFRUIT
VELVETMOLE	BUTTERMELT
PRINTQUEUE	INMYPOCKET
SMALLVASES	WHATAPRATT
MISSIONTWO	IRRELEVENT
SLIPPYMATS	PASSESBACK
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PMC1008HER	HAVENOMORE
MESIAMACUK	SURPRISING
FILLINGRAM	THATITISNT
WIMESSAGES	SCREWINGUP
NOTTHATYOU	STILLTHERE
WILLBUTCAN	EXISTSMORE
HOPEANYWAY	THANONEDAY
PEOPLEWILL	BEFORESHOW
	GOODBYEALL

And finally, how could I leave you without the universal editor codes? Here they are.

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Scenic	28072
Standard	88835
Mazes	71869
Puzzles	72729

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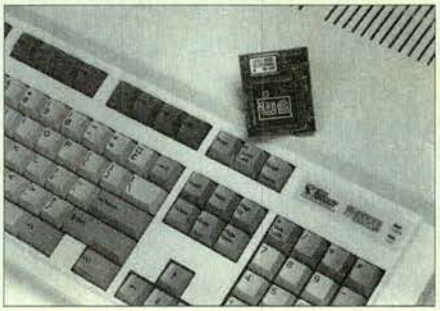

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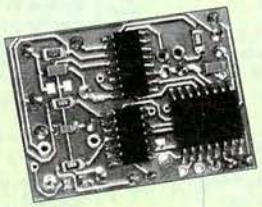

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All Laser printers (excluding HP Lasers) include 12 Months On-Site maintenance

Brother HL6	6ppm	£422
Brother HL6V	6ppm	£465
Canon LBP4+ 1.5M RAM	4ppm	£635
Canon LBP4U	4ppm	£485
Canon LBP-8 Plus IIIR	8ppm	£1559
Canon LBP-8 IV 600DPI	8ppm	£925
Epson EPL5000	6ppm	£433
Epson EPL-5200	6ppm	£483
Epson EPL-7500 PS	6ppm	£1135
HP Laserjet 4 ML	4ppm	£745
HP Laserjet 4	8ppm	£960
HP Laserjet 4L	4ppm	£469
HP Laserjet 4M	8ppm	£1286
HP Laserjet 4P	4ppm	£717
HP Laserjet 4MP	4ppm	£979
HP Laserjet 4Si	16ppm	£2175
HP Laserjet 4SiMX	16ppm	£3260
NEC 610 Super Script	6ppm	£422
NEC Silentwriter S102	6ppm	£914
NEC Silentwriter S102P PS	6ppm	£1284
OKI OL400EX	4ppm	£385
OKI OL410EX	4ppm	£523
OKI OL 830PS	8ppm	£799
Panasonic KX-P4400	4ppm	£360
Panasonic KX-P4410	5ppm*	£424
Panasonic KX-P4430	5ppm*	£530
Panasonic KX-P4440	10ppm*	£779
Panasonic KX-P5400 PS	4ppm	£599
Star LS-5	5ppm	£442
Star LS-5 EX (RISC Based)	5ppm	£510
Star LS-5 TT True Type+Mac	5ppm	£732

*2 years on-site warranty

Laser Toners

Canon 2, 3 & 4	£52	KX-P4400/5400	£12
Canon LBP4U	£52	KX-P4450/50i/55	£19
Canon 8/Star LP8	£52	KX-P4410/20/30	£29
Canon LBP8-IV	£65	NEC 290	£78
Epson GQ	£14	NEC S60/60P/62P	£89
EPL 40/41/4300	£63	OKI OL400/800	£19
EPL 5200	£85	OKI OL400e	£17
EPL 71/7500	£117	Star LP4	£48
HPII/D, III/D	£52	Star LS5	£63
HP IIP, IIIP	£46	VM800 8K pages	£99
HP4/4M	£70	Qume Crystal(3)	£99
HP Laserjet 4L	£45		

Laser RAM Upgrades

Type	1M	2M	4M	8M
HPIIP; III/P/D	£54	£90	£132	
HPII & IID	£65	£110	£175	
HPIIIsi	£63	£85	£158	£299
LJ4/4L//4M	£65	£85	£150	£299
EPL40/41/4300	£70	£110	£205	
EPL 50/5200	£58	£115	£215	
KX4410/30	£70	£110	£199	
KX4420/50i	£65	£89	£149	
KX4400	£89	£129	£239	

Jetpage Postscript Cartridge

- HP IIP/IIIP £225
- IID & III £227

Various Add-Ons

- HP Premier Font Collection £19
- Laserjet Various Font C'tridges **from** £45
- HP Postscript Module for LJ4 £270
- Laserjet 4 Powered envelope feeder £199
- Jetdirect Ethernet Card for Laserjet IIIsi/4/4Si £339
- 500 Sheet paper cassette (3rd Bin) £205
- HPIIP/IIIP Lower Cassette Tray £115
- Canon LBP-4 Lower Cassette Tray £96
- Ozone Filter P4420 £9; P4450/55 £20

Panasonic Printers

	Printer	CSF	Ribbon
KX-P1170	£91	£59	£6
KX-P1624	£210	£126	£8
KX-P1695	£267	£126	£6
KX-P2023	£122	£155	£8
KX-P2123M	£132	£69	£7
KX-P2124	£210	£89	£7
KX-P2624	£255#	£126	£8

#Includes 12 months on-site warranty

- Colour Kit for KX-P2180; KX-P2123 and KX-P2124 £30
- Dustcover for 80 column printers £6
- Serial Interface for above Printers £46
- Black Ribbons for P1081, 1180, 1124 £7
- 32K Buffer for above Printers £16

P.S. Our original Panasonic Ribbons are guaranteed to last 3 million characters.

Canon Bubblejet Printers

	Printer	CSF	2nd Bin	Ink Cart
BJ10SX	£154	£43	–	£15
BJ200	£202	–	–	£16
BJ230	£276	–	–	£16
BJ300*	£322	£88	£88	£11
BJ330*	£372	£92	£79	£11
BJC600	£418	–	–	£7.50
BJC800	£1075	–	–	£16

Black Cart. for: BJC600 £6; BJC800 £13

- Optional Battery Pack for BJ10EX/SX £33
- BJ10E/10EX/10SX/200/230 Jumbo Ink Refill pack (twice cartridge volume) £12

* includes 12 months on site warranty

Citizen Printers

120D+ parallel	£90	Swift 90C	£122
120D+ Serial	£109	Swift 200	£142
ABC 24pin Mono	£115	Swift 200C	£156
ABC 24pin Col.	£135	Swift 240	£170
Swift 90	£115	Swift 240C#	£187

2 years warranty on Citizen Printers.

FREE Windows Printer Driver

- Swift 24 Ribbons: Black £4 Colour £13
- Cut Sheet Feeder for 80 col. printers £75
- Citizen 120D Ribbons £3.50

Star Printers

	Printer	CSF	Ribbon
LC15	£179	£135	£5
LC100C	£103	£65	£9
LC24-15 Mk2	£240	£135	£5
LC24-20	£170	£–	£–
LC24-30C	£169	£–	£–
LC24-100	£130	£69	£5
LC24-300C	£224	£–	£–
LC24-20 Mk2	£173	£65	£5
LC24-200C	£200	£65	£12
LC200 C	£147	£65	£12
SJ144 colour	£345	£–	£–
XB24-200C	£320#	£80	£12
XB24-250C	£385#	£139	£12

Includes 12 months on-site warranty

- Black Ribbons for Colour Printers £5
- Serial 8K I'face LC10/15/24/200 £52
- 32K Buffer LC/XB24-10; 15; 200 £52

Scanners

AT – HP-ScanJet IIP **£500;** IIC **£949**

PS/2 – HP-ScanJet IIP **£501;** IIC **£950**

HP Auto Doc Feeder IIP **£229;** IIC **£365**

HP ScanJet II CX **£689**

Epson A4 Scanners: Supplied complete with Pic Publisher LE, Omni Direct OCR, Interface card & Cables

GTX6500P **£535;** GTX6500S **£599**

GTX8000P **£699;** GTX8000S **£760**

Epson Printers

	Printer	CSF	Ribbon
DFX5000C	£1095	£–	£23
FX870	£228	£47	£4
FX1170	£284	£69	£6
LQ100	£119	£–	£4
LQ570+	£189	£45	£4
LQ870	£335	£45	£6
LQ150 Col	£165	£–	£–
LQ1070	£285	£69	£6
LQ1170+	£404	–	£10
LQ2550	£667	£360	£6
LX100	£109	£–	£4
LX400	£91	£69	£4
LX850+	£134	£69	£4
LX1050	£174	£125	£6
SQ870	£415	£170	£23
SQ1170	£560	£155	£23
Stylus 300	£178	£–	£10
Stylus 800	£185	£–	£10
Stylus 1000	£344	£–	£10

Epson RS232 Interface

Standard **£28;** +8K Buffer **£75**

- LQ100 Tractor Feed £29
- FX850/LQ800/850 Tractor Feed £69
- FX/LQ1050 Tractor Feed £85
- LQ2500/2550 Tractor Feed £90
- Dustcovers for 80 col printers £6

NEC Printers

	Printer	CSF	Ribbon
P22Q	£134	£59	£6
P3Q	£–	£–	£–
P32Q	£245	£79	£6
P72	£386	£115	£8
P90	£562	£115	£8

- Black Ribbons P20; P32 £6
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3 to 1	£11	£12
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3 to 1	£15	£17
4 to 1	£24	£26

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Connects	Serial	Centronics
2 to 1	£27	£29
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8 to 1	–	£75

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These Parallel Auto printer sharer switches have built-in 256K Buffer.

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DJ1200C	£1072	DJ Portable+CSF	£205

+ Includes 12 months on-site warranty

3 years on-site maintenance available as follows:

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Plug In Font Cartridges for DJ 500

22706B - Prestige, Elite, Line Draw £55

22706C - Letter Gothic & HP Line Draw £56

22707P - Proprint Emulation Cartridges £57

Fujitsu Printers

	Printer	CSF	Ribbon
B100 Inkjet	£146	£35	£14
B200 Inkjet	£209	£35	£14
DL1150	£209	£99	£6
DL1250	£309	–	–
VM600 Laser	£529	–	–
VM600E	£769	–	–

Roland Plotters

DXY1150	£575	DXY1250	£725
DXY1350	£939	DPX2600	£POA
Sketchmate A4	£335	A3	£449

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(On continuous fanfold backing sheet)

1,000 90 x 36mm (Single Row)	£4.50
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1,000 90 x 49mm (Twin Row)	£4.95
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Laser Printer Labels on A4 Sheets

2400 – 70 x 37mm (3 Rows x 8) £15.25

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Floppy upgrade

Delving into the postbag, Mike Cook comes up with another selection of answers to your questions

AGENDA

- Adding 1.6Mb drives
- Connecting printers
- No sound
- Ram or ARM
- Wiring joysticks
- Font management
- Unidirectional parallel port
- Viewing and printing
- Faulty PSU

Q I HAVE an A3000 with RISC OS 3.1 and now want to upgrade the floppy disk drive from the ADFS 800k to the new 1.6Mb drives available on the newer models.

I understand that it is the disk drive controller chip that actually restricts the straightforward attachment of a new drive. If a replacement chip can be purchased separately, is it a simple case of unsoldering the current chip and replacing it with a new one, or is there more to it than meets the eye? – **Stephen Samson, Bushey, Herts**

A *Sorry, it is not as simple as that. First of all, the disk controller chip has a physically different package so a simple replacement is out. Secondly, you need some extra circuitry on the end as well as different software drivers for the higher density drives.*

You could try contacting Greyhound Marketing (0532 621111) for their A3000 upgrade system that does include a 1.6Mb drive and was reviewed in November 93.

Remote access

Q I AM thinking of connecting an Archimedes to a laser printer that is 20 metres away. Could you please advise me what to do.

I know where to get a 25-way screened cable from – for the parallel printer port, I can't use the serial port – but will I run into any data problems because of the long distance.

I read that screening problems might occur, is this true? – **Mark Tuckwell, Tarporley, Cheshire**

A *The serial port would, in fact, be your best option for running a printer at distance. This is for two reasons. Firstly, it is designed to run over such lengths and second, if you do have problems you can drop the baud rate until they go away.*

I would expect problems with a parallel printer. Primarily, you might not get enough signal at the printer end. This is especially true of the rapid strobe pulse that might get swollen in the stray capacitance of the line.

You also have the problems of stuffing – a technical term that means although you sent all the signals at the same time they do not always arrive together.

The only way you will know for sure is to try it on the bench beside you, that will tell you if the signals are getting through. Then try it at the remote location which will tell you if there is any problem with noise.

If you do have trouble there are some actions you could take to make it work. Try extending the strobe pulse by using a monostable. Then you could try buffering the signals.

The first way would be to use a normal line driver at the computer end only – like the 7438. If that does not work then try catching the signals at the other end with Schmitt input like the 7414.

Remember, both these invert the signal so you might as well put both of them on to start with. If all that fails you should get some RS2 32 line drivers and receivers off the eight data lines and three control lines. Best of luck.

Speed and memory

Q IN THE December issue you published a letter from Chris James of Ticknall, Derby, who had upgraded his 420/1 to 4Mb and began to experience intermittent problems. I had exactly the same problem with my machine.

After the upgrade I had over a year of problems but the suppliers couldn't find any, or thought they had solved them by replacing the extra 2Mb with new ram chips. It was only when I took it to my local dealer that I was able to show the fault in action.

Acorn extended my guarantee and the machine was sent to Granada for a thorough inspection. My local dealer had guessed that there was a loose ram socket in the area where the additional 2Mb of ram was inserted and that the bumping around to and from the courier may have hidden the problem.

Granada took out all the ram sockets, soldered them in and then soldered in the ram. I have had no problems since.

However, my 420/1 still has the original ARM2. I run in Mode 102 using Ovation and Eureka in the office on a continuous basis. I find the system can be quite slow and sometimes I cannot print spreadsheets for lack of memory.

I have a HiRes LPB8 laser printer but very seldom can I use 600dpi, I have only so much cash to spend on an upgrade. Should I go for extra memory, an ARM3 or graphics card?

I believe that the latter will give me extra speed and help over the memory. Is this correct? – **John Waddell, Langbank, Renfrewshire**

A *Thanks for the help. As to your problem it depends on what troubles you most: The lack of speed or memory. The ARM 3 chip will speed things up quite considerably in your case because the processor is constantly being held up while the video circuitry accesses the memory.*

The cache in the ARM 3 chip ensures that this is not so much of a problem, so you will find the upgrade well worthwhile and would be my top

➤

Silence is golden

Q I HAVE an A4000 with 4Mb ram and a very annoying problem. The internal speaker refuses to work and I cannot find out why.

I can get sound from the headphone port and the sounds used in the configure application are on, or at, a maximum. Can you help? – **Gareth Wallis, Street, Somerset**

A *I AM assuming that you have tried all the software methods of turning on the sound and that you have never had sound out of the machine. If this is the case then it is probably a hardware fault.*

Q: How many programmers does it take to change a light bulb?
A: None, it's a hardware problem!

The simplest explanation is that the speaker lead has come off. This can happen by accident when putting your computer back together again. Just take off the lid and see. If not, then any Acorn dealer worth his salt should be able to track it down with an oscilloscope.

➤

priority in your situation. Then I would go for extra memory as you can rarely have too much in any machine.

Finally I would opt for the graphics card. This can free more memory and give greater speed in some circumstances, but this would be marginal compared with the other two upgrades.

Adding a little joy

Q I HAVE been trying for the past few months to convert a Quickjoy joystick with a nine-pin plug to a 15-way analogue port for my BBC B. Unfortunately I have had no success in wiring it up. I hope you can help. – **M. Lee, Langton Green, Kent**

A *The circuitry of a switched joystick is quite different from that of an analogue joystick so you can't simply wire it up to the analogue port. What you need is an interface circuit but these days this could cost you more than getting another joystick.*

In the February 1985 issue of The Micro User I published a circuit to do this. This is still available from Musbury Consultants as Pack 20 and costs £10 as a kit or £12 assembled.

Request a reprint of the article for free when ordering, or send £1 if you just want the text. If you are interested in other past kits and articles send an SAE for the full list.

You can write to Mike Cook c/o Acorn Computing, Europa House, Adlington Park, Macclesfield SK10 4NP.

He will answer any questions about difficulties you may be having with your machines, mainly those to do with hardware. If you want a personal reply ensure that you enclose an SAE with your letter.

Managing fonts

Q I AM having trouble with a DTP package on the A3000. When I try and enter the program I get the error *You must load the Font Manager with Desktop Publisher. To do this double-click on the !Fonts application provided.* I have tried various things but what or where is the Font Manager?

Also could you tell me if I can add other fonts to the !Fonts folder on my hard disk? Would there be a limit to the number of fonts in an application or would they conflict with each other.

With so many items now requiring RISC OS 3 would it be advisable to upgrade and how would this affect the files – Paint, Edit and so on – already on my hard disk? – **H. Dougherty, Lisburn, County Antrim**

A *The Font Manager is inside the !Fonts folder and is a module called FONTS. When you double-click on the folder it should be loaded. There is also an extension called SUPER – short for SuperSample – which handles outline fonts.*

If you look at the !Run file in the !Fonts folder – hold down Shift and double-click – you should see the instruction to load them. If not, simply double-click the RM icons.

Adding other fonts is easy. Simply drag the fonts folder you want to add into the opened !Fonts window. These will now be available to all applications.

You can only have 77 items in a directory/folder so you'll be limited to about 70 font families. With a PD utility such as !FontMGR though, you can have 5,000 font families to play with. Fonts don't conflict.

I would strongly recommend that you upgrade to RISC OS 3 as increasingly, applications will demand it before running, for the simple reason that developers have not tested it under the older system.

This can cause some compatibility problems as have been highlighted in this publication and others. However, by its nature you only get to hear about the problems which can lead to a distorted view.

There will be no source of incompatibility when loading Paint and Draw files and you have the added advantage of these being built into the rom.

In the right direction

Q HOW about a Body Building project for us A300/400 owners left behind with the original unidirectional parallel port?

You could base the hardware around the APEC card, incorporating extra circuitry for the later bidirectional parallel port.

As well as possibly allowing simple comms with PCs running DOS 6, it could enable people like myself to use the increasing number of add-ons, from the likes of Atomwide, that use such a port. – **William Swanston, Hallglen, Falkirk**

A *The problem here is that while it would be perfectly possible to make a plug-in card that gives a bidirectional printer port, it would be difficult to design the patch software that would drive it in a transparent way so that third party add-ons would work without any modification.*

There are many other ways of getting signals into and out of the A300 but I feel the cost would not justify the market. However, if there is interest feeling from readers I might be tempted to look into this.

Leaky capacitors

Q UNFORTUNATELY, I have problems turning on my early model A5000 with 40Mb hard drive and a 4Mb upgrade. When the power switch is depressed the monitor comes on immediately, but the computer can take up to a minute or longer before the fan or power light come on. – **Carl Middleton, Gedling, Nottingham**

A *If the computer is taking a long time to come on it is almost certainly the power supply. A leaky capacitor in the supply means it takes time for the correct voltage to build up.*

This must be fixed immediately before it has a chance to do any more damage. A company I have had good dealings with who specialise in mending switch mode power supplies is RW Electronics (0404 84648).

Wasting paper

Q I HAVE recently come into possession of a BBC Master with an Epson FX 80+ printer with no manual. My problem is that when using View the printer moves the paper up two or three inches before starting to print.

On A4 paper I am wasting about a third of each sheet. I have tried setting the margins and footers to 0 without success. As I am an absolute beginner could you tell me how to get the printer to start printing immediately on the Print command? – **S.S. Dean, West Bergholt, Essex**

A *I am not sure how much help I can be here. However, let me assure you that your problem is in the software not the printer. To see this yourself just type VDU2 followed by *HELP and finally VDU3. You should see the help text printed straight away without any line feeds.*

Remember that the space at the top of a page is defined by TM (top margin), HM (header margin) and by the header itself, if any. Make sure that you are setting these correctly. One way is to increase them and if there is no effect then you know you are not using the commands correctly.

Another possibility is that View is sending a throw page *instruction to the printer and your paper is not aligned correctly – in other words the printer's start of page position is three inches down your paper.*

The solution here is to use the form feed button on the printer then move the paper so that the perforations are just above the print head.

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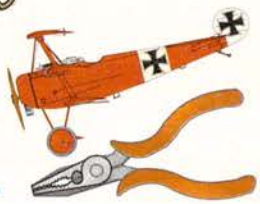

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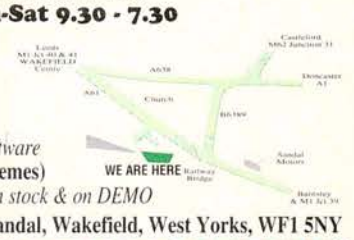

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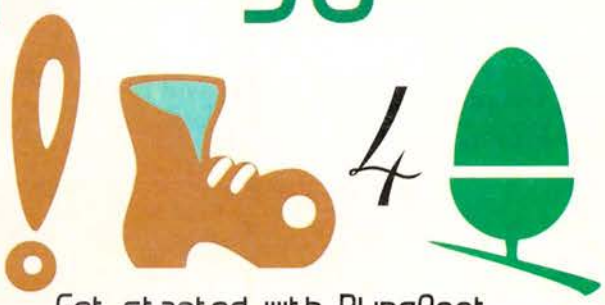

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Mike Cook races ahead with another bit of body building

Ready, steady, go

LAST month I looked at how you could use the bi-directional printer port on the newer Acorn machines, so this month I thought I would look at a project involving computer inputs.

As summer approaches, however hesitantly, it is the time of year for that traditional British favourite: The summer fete. These are designed to extract the maximum amount of money in a minimum amount of time.

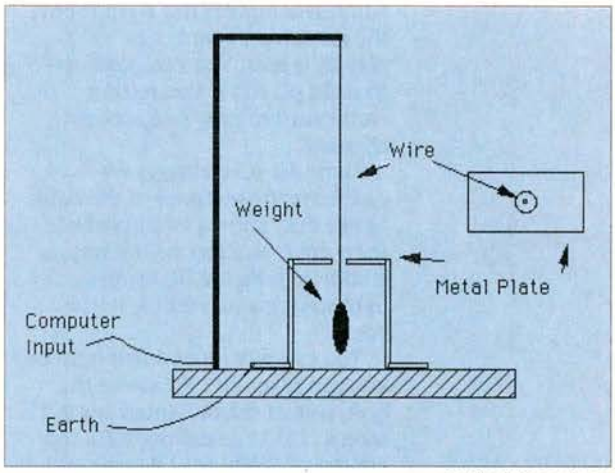
Be it school, church or village, the games on offer tend to be the same. Therefore, I would like to throw some ideas at you for utilising the computer for the worthy task of fund-raising.

One that I have covered in the past is the steady-hands game. This is where there is a curly piece of wire, possibly using a coat hanger and a wire loop. The aim is to get from one end to the other without touching the wire.

End contacts can be used to measure the time taken for the traverse and you can organise a high score table for the winner.

Now, a different variation of this is shown in Figure I. Here we have a pendulum made from thin wire. I found it best to use 26 SWG enamelled wire, with the enamel cleaned off with fine sand paper.

This is passed through a small hole in a plate and a small weight is attached to the end. The idea is that this arrangement is to be carried, maybe over an obstacle course, without the pendulum touching the sides. This can be attached to the computer by a long wire with your Acorn monitoring the touching and timing.



● *Fig I: Steady as she goes game*

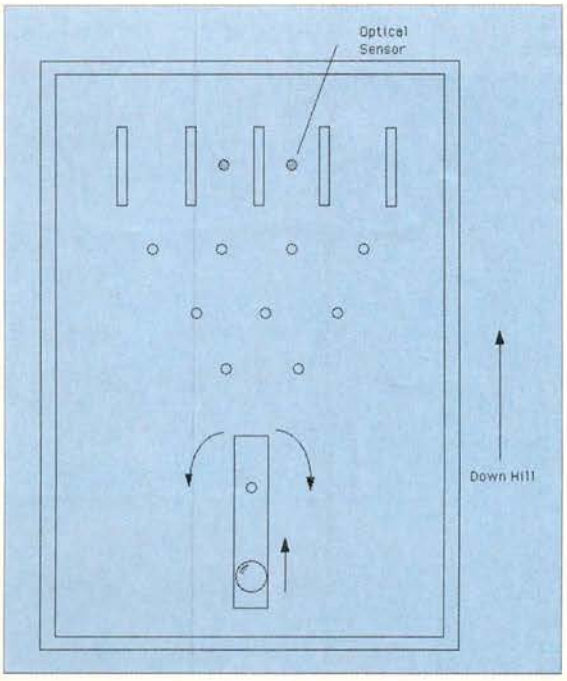
While this is just a speculative idea the next project is one I have developed to a much greater extent – a race game based on those you see at seaside fun fairs.

The idea is that each contestant has to do something to advance their player, in most cases this involves rolling balls so that's where I will start.

Figure II shows one possible arrangement of the table. The idea is that balls are rolled down a U-shaped shoot towards a series of pins. The ball then gets deflected off the pins and directed into one of several channels.

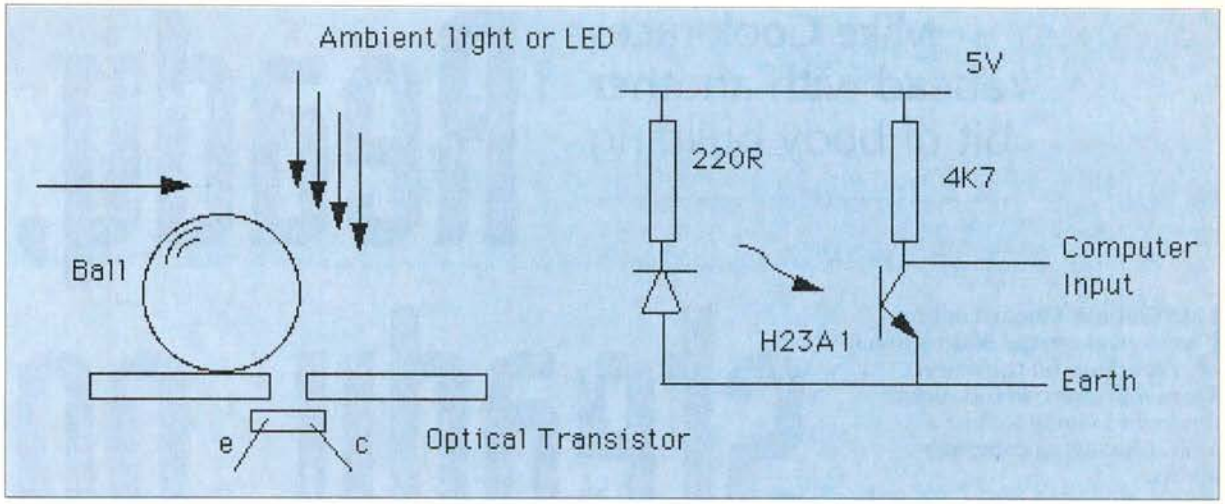
You can make this even more complex than the figure with more rows of pins and more final destinations. In my figure, two of these channels have sensors in so that the computer can detect the presence of the ball. Whenever a ball is detected the appropriate runner is advanced.

You will need to make one of ➤



● *Fig II: Possible arrangement for racing game*

● *Fig III: Using a photo transistor as a ball sensor*



➤

these for each player. As this arrangement has two sensors and the computer has eight inputs the maximum number of players is four. You can have up to eight players if you restrict each board to only one active channel.

There are several ways we can sense the presence of the balls, I have only shown two here but there are many more. One way is shown in Figure III, using a light sensor under a hole in the board.

You can rely on ambient light or you can place an LED above the hole and let the ball interrupt it. I used a H23A1 matching infra-red emitter and sensor to do this and it worked quite well.

The emitters can be mounted on a narrow bar over the channels or on a piece of perspex.

There is no need for the emitter if you have a bright light over the top of the board or you use it outside. You can use virtually any type of light sensor as you get a very good light change as the ball rolls over the hole.

However, for increased reliability you can use the arrangement shown in Figure IV. This uses the more expensive HOA 1405 reflective optical switch. This is a combined emitter and detector in one package and the presence of the ball is detected by reflections off it. I found table tennis balls very good for this as well as large steel ball bearings.

There are other methods you could choose, for example you could have a micro switch in each channel, though this would require heavy balls, although you can get micro switches with a very light pressure requirement. Alternatively, you could use self-adhesive copper strip and let the ball bearing complete the contact as it rolls over.

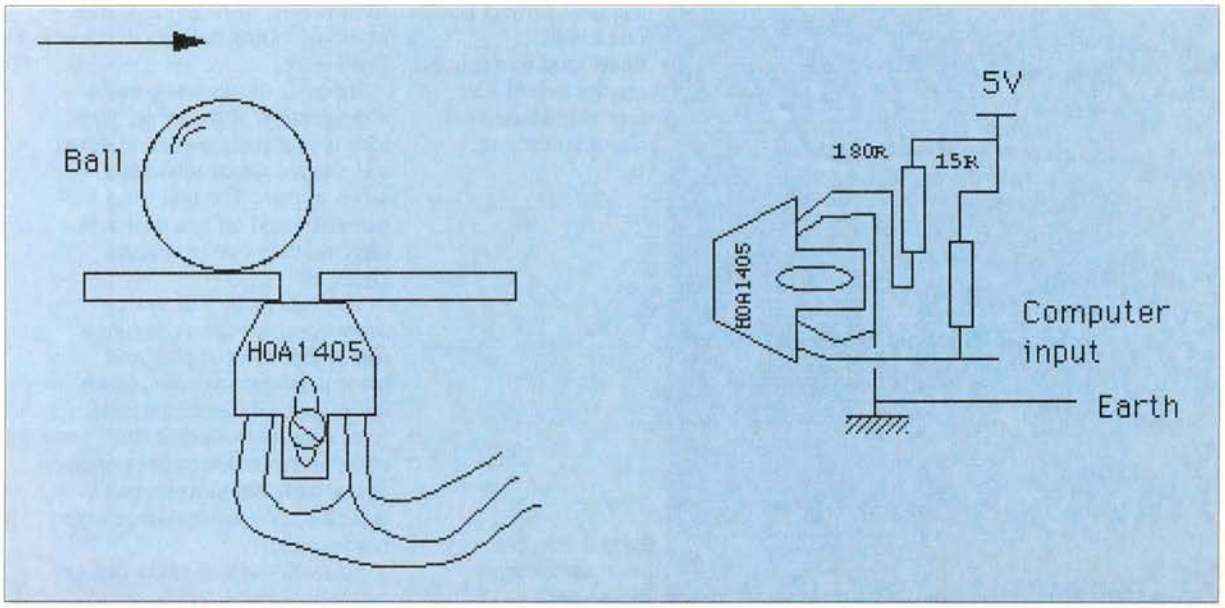
You could dispense with the balls altogether and arrange copper strips at the bottom of a long shoot. Here the contestants slide coins down and as the coin makes contact the player advances.

Of course the player has to keep throwing money at it to make any progress and *you* needn't be too fussy about giving it back. If you arrange the mechanics correctly you could have a player *run away* with the race if a coin stopped on the strips. This arrangement is shown in Figure V.

Any other method of detection

➤

● *Fig IV: Using a reflective optical switch as a ball sensor*



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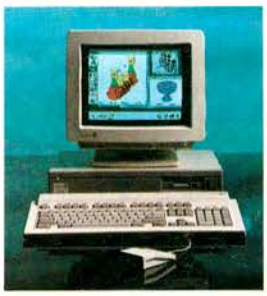

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could be used but others would tend to be more expensive for no extra advantage.

Whatever detection method you use you need to wire this up to the computer's inputs, this is shown in Figure VI. In fact the arrangement can be any you like but the one shown here matches up with the software on this month's disk.

This software is in fact written assuming that you have a User Port attached to your computer, but it can easily be modified for any form of input. The input is only read at Line 810, this places the value of the input into a variable *A%*. This can be modified to use the printer port as I described last month or it can be a I²C input or serial port as I have covered in past articles.

The figures that race are held in a sprite file identified by letters *a* to *d*, and each runner has five sprites, labelled *s* and *1* to *4*. The *s* sprite is when the runner is standing still and the others are the various stages in running. So the first runner is *a* and his sprites are *sa*, *1a*, *2a*, *3a*, and *4a*.

This file could easily be modified to make the sprites contain anything you want. For example you could replace them with horses, cars, sailing boats or even frogs. If you want them to have a different number of movements in a cycle then the program is easy enough to change, as a glance will show that it's all done with arrays.

When the game starts the inputs are continually checked to see if the sensor is detecting the ball and advances the player accordingly. I have given each sensor an equal weighting but again you could change that if you want.

Note here, that some types of sensor return a zero when detecting a ball and others return a one. The program is written for those returning a one when the ball is detected, as in Figure III. The other input sensors return a zero when detecting something. Fortunately the modification is quite simple, all you have to do is to remove, or REM-out line 820.

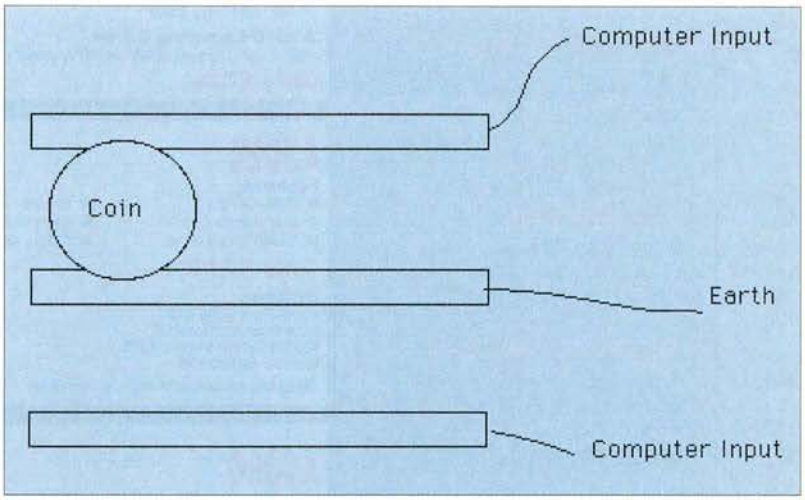
Finally, for those of you who are not all that good with hardware I have included a random option.

This doesn't require any hardware and a random number generator is used to decide whether each player is to be advanced. Note here that the *FX19 command is used to make sure that there are only 50 steps taken per second, adding another will make the race last even longer, as will altering the increment size.

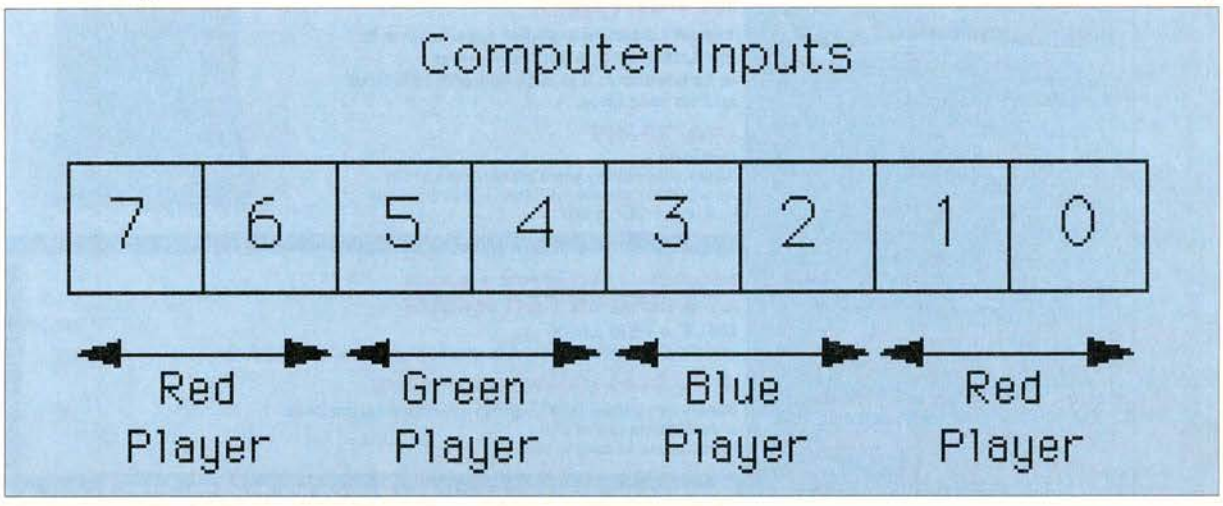
The use of this program is enhanced by a good operator. You should be able to accompany the race with an exciting commentary. I do like to give scope for enhancements in all my articles and an obvious one here would be the inclusion of sound.

You could have the crowd cheering as the runners raced, when a winner was found there could be a crescendo of cheering and the sound could die down.

Remember it's not winning that's important but how much money you raise, all in a good cause of course. See you next month.



● *Fig V: Electronic shove halfpenny*



● *Fig VI: Computer input for the race game*

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Bunch of fives

AT LAST I have taken the plunge and become a subscriber to *Acorn Computing*. So I feel entitled to make one or two – well five – comments mainly arising from the February issue.

Sensible Soccer – brilliant and I've bought it.

On Steve's Comment, how about an even more radical suggestion. Have the desktop on a smaller screen attached to the keyboard, rather like a laptop computer, and use the monitor just for the work in progress. The present system is rather like driving a car with the dashboard instruments mounted in the middle of the windscreen.

I have been using a colour dot matrix printer for a while which was faulty and returned. I still intend to get another and when I do I shall quite often use it for highlighting parts of diagrams and/or areas of text. The choice of colour is often unimportant.

Using Impression I have not found out how to specify a colour which will use just a single colour bank on the printer ribbon. Such a facility would speed up printing and would reduce cross-colour contamination on the ribbon. Any ideas?

On David Royle's *Cry for help* he highlights a problem which I discovered on my A3010 18 months ago. The idea is widely promoted that home computers are as easy to set up and use as other electronic home entertainment systems. In fact the whole area is a minefield of non-standardisation, set-up requirements and variable product quality.

For a marketing man, or experienced reviewer, to say a new word processor is easy to use is rather like an experienced motor mechanic saying that a new type of engine is extremely easy to service. Anything can seem easy if you have sufficient knowhow.

Finally, my mouse is poorly. Despite regular cleaning and much tinkering with the configuration, my mouse drags its feet more and more and is lucky not to have had its neck strangled.

It has always been a bit temperamental, but it is getting worse. It is the original mouse supplied with the machine and I use a mouse mat. What can you suggest? – **Kevin Adler, Neath Hill, Milton Keynes**

● *There are many suppliers of mice, but we've found the Clares mouse to be of good quality and it seems to last.*

It is difficult for an expert to provide an opinion that's of value – let alone comprehensible – to a beginner, but by the same token, a beginner does not have enough experience to evaluate software in context.

Ribbon-based colour printers were a passing phase and we would never recommend them. Rechargeable inkjet printers, or ones where the colours are held in separate reservoirs, are the way forward – and avoid the problems you've described.

A display on the keyboard has been tried but was unpopular and expensive. Better that you learn to touchtype, then you don't have to look at the keyboard at all.

Rom holders

WITH reference to the letter from Robin Moffat of Sheffield and his new BBC Master. Robin was concerned about a four slot rom holder which only appeared to allow one rom to be connected at any one time.

His descriptions sounds very similar to the Watford Electronics Master Quad rom cartridge, which is still available. Due to the fact that the Master rom socket can only address two roms, the Quad cartridge has two switches on the top edge. Switch one will select between roms A or B while switch two will select between roms C or D.

It should be noted that Watford recommend switching the system off to allow the switching to take place.

I would like to congratulate Robin on his new present as I still think the BBC Master is a marvellous machine despite being the owner of two *more powerful* computers. – **Peter Lawrence, Ely, Cambridgeshire**

Driving printers

I AM an amateur programmer and have been trying to work out the Printer Driver commands. I have written an art program and up until now I have been using Acorn's HardCopy module.

This only prints in black and white and I would like to

Bad tracks

THERE seems to be a fault with all the programs on the 40 track February *Acorn Computing* subscription disk. I use a BBC B with an issue 7 board and the roms on board are ViewStore and DiskDoctor.

On booting the disk all I get is a disk fault on the screen. On dumping boot it stops at 0800 and reports a disk fault. If I switch to 80 tracks I can dump all of the s.sprite1 and s.sprite2 and sprcode. I can copy these from one disk to another too. I then switch to 40 tracks and can do nothing with them.

The !Boot file will dump to 0800, then there is a disk fault. The other files in general will dump to 0800, 0700, 0A00, 0600, 0500 and report a disk fault when in 80 tracks. Switch to 40 tracks and the dump stops at 0000 and reports a disk fault.

After track two I get a verify error. Should I send the disk to Datapulse for replacement? – **Mark Bukowski, Ealing, London**

● *If there is a physical fault with a disk such as you're describing here the company that duplicates the disk should replace it. A physical fault is one where a verify on the disk fails in one or more places.*

You must make sure you send it to the correct disk duplicator for replacement, otherwise I'm afraid you may well be ignored. Datapulse Disk Duplication currently reproduce the BBC subscription disks (40 track, 80 track and 3.5in Compact). They used to produce the 32-bit subscription disk, PC Wise now do the two 32-bit disks, Megadisk and subscription disk.

Where there's a problem with the programs themselves – for example they seem to load but then don't work – that's when you should contact us in writing. We handle problems as fast as we can.

incorporate the PDriver commands into the program to print out the screen in colour.

I have used the Programmer's Reference Manual but I still do not understand how to use the commands. Please can you help? – **Paul Roegele, Dereham, Norfolk**

● *It sounds as if you're trying to use commands which are designed to fit a multi-tasking concept into a single-tasking program. The simplest approach is to save the pictures to disk and then print using Paint or Draw.*

However the next article in Ben Summers' occasional programming series will be on using the Printer Drivers.

Play it again, Richard

THOSE in possession of the demo version of Sensible Soccer from the February issue of *Acorn Computing* will probably know that after a goal has been scored a replay is shown and the game resets so you can play again.

You can stop the game resetting if, as soon as the goal is scored, you push up and/or down on the cursor keys to bring on the Subs bench. Return to the manager, wait two or three seconds and then press Return again.

You will then run to the centre circle and get ready to kick off. If this doesn't work the first time please persevere, as it does work, believe me. – **Richard Mercer, Warminster, Wiltshire**

● *Thanks for the info, now why not move on to the full version which has a lot more features and depth than the taster on the February Megadisk.*

Starting a club

I HAVE been considering starting an Archimedes users club in the Suffolk area for a while now. I anticipate an informal event, probably starting in a local public house and maybe hiring a hall in the future.

I would like the club initially to be a social event, hopefully expanding to offer support, help newcomers, making books available on a library basis as well as swopping public domain software and helping some of the local schools using Acorn machines. – **Andrew Keeble, Ipswich, Suffolk**

● *If you are interested you can contact Andrew on his mobile phone on 0831 884703, Email Fidonet 2:2501/302.5 (Andy Keeble) or at 35 Clive Avenue, Ipswich, Suffolk, IP1 4LU.*

PC or not PC

I HAVE a 33MHz A5000 and I am very happy with the machine and am considering buying a PC card. I already have Acorn's PC emulator version 1.8 which supports VGA resolution. Is this proper 256 colour VGA?

Also can a colour card inside the Arc be used by the PC card and if it is, can I have Windows from the PC card using a 16 or 24-bit colour mode? I notice from an advert for the PC card that you can use the CPU in the Arc as a co-processor – is this true? Finally, is the card limited to a 4Mb upgrade?

It is possible to use the Arc's memory as well as the memory on the card, so in effect you could have an 8Mb PC using the 4Mb in the the A5000. I would like a second hard drive for the PC card that has been re-jigged by *Stacker* (PC software) which can increase the amount of space on the drive. – **P. Smith, Wetherby, Leeds**

● *Let's dispose of the impossibles first: No, you can't use the A5000's 4Mb as additional memory – you can only use what's on the card, and yes, it is limited to 4Mb. What you think of as a co-processor and what it actually means differs considerably.*

The ARM chip provides low-level Windows graphics driver routines so that the graphics instructions are not performed by the Intel chip. This means that the 386 or 486 can spend more time on computation and not be bothered with simple housekeeping tasks.

The Stacker can be loaded and should work fine – you don't have to have a separate hard drive, although it does help. Remember that Stacker doesn't increase space on the disk, it compresses files and some will compress better than others. It is equivalent to Computer Concepts' Compression program.

Yes the Acorn VGA mode is real VGA, but it doesn't mean you can render 16-bit or 24-bit colour from a PC card because the PC screen is held as a sprite in memory and the RISC OS 3.10 bit-mapped software doesn't know about more than 256 colours.

Red rescue

I HAVE a copy of Red Arrows which Mr Moffatt is welcome to for the price of its postage. It does say that it's for the BBC B and B+ but doesn't mention the Master.

Although there may not be dedicated hardware built for the BBC any more, there are modules around for computers in general.

There are two in the current edition of the Maplin catalogue. One is an 8-bit input/output port which communicates to the host computer using the RS232 port. The other is a unit which connects to the printer port and by *Printing* particular ascii codes to this unit will operate certain relays which could switch any loads connected to it. This last item is also catered for in the Cirkit catalogue. –
Peter Hopkins, Peterborough, Cambridgeshire

● *If Robin Moffat would like to get back in touch with us we will pass Mr Hopkins' details on to him.*

Want to write to us? The address is: Letters, Acorn Computing, Europa House, Adlington Park, Macclesfield SK10 4NP.

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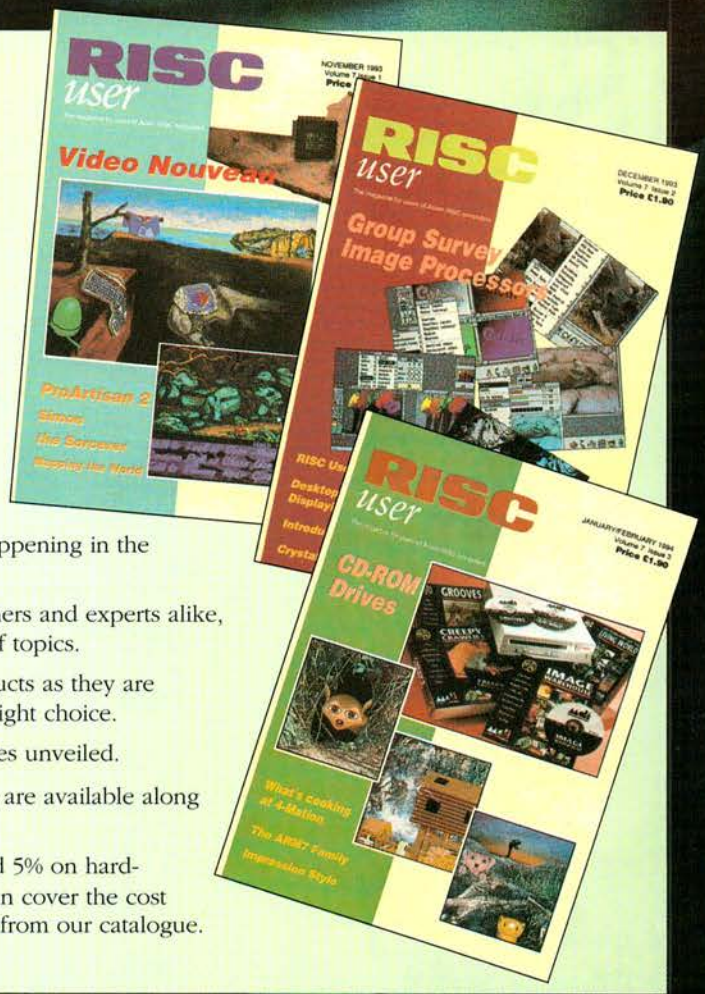

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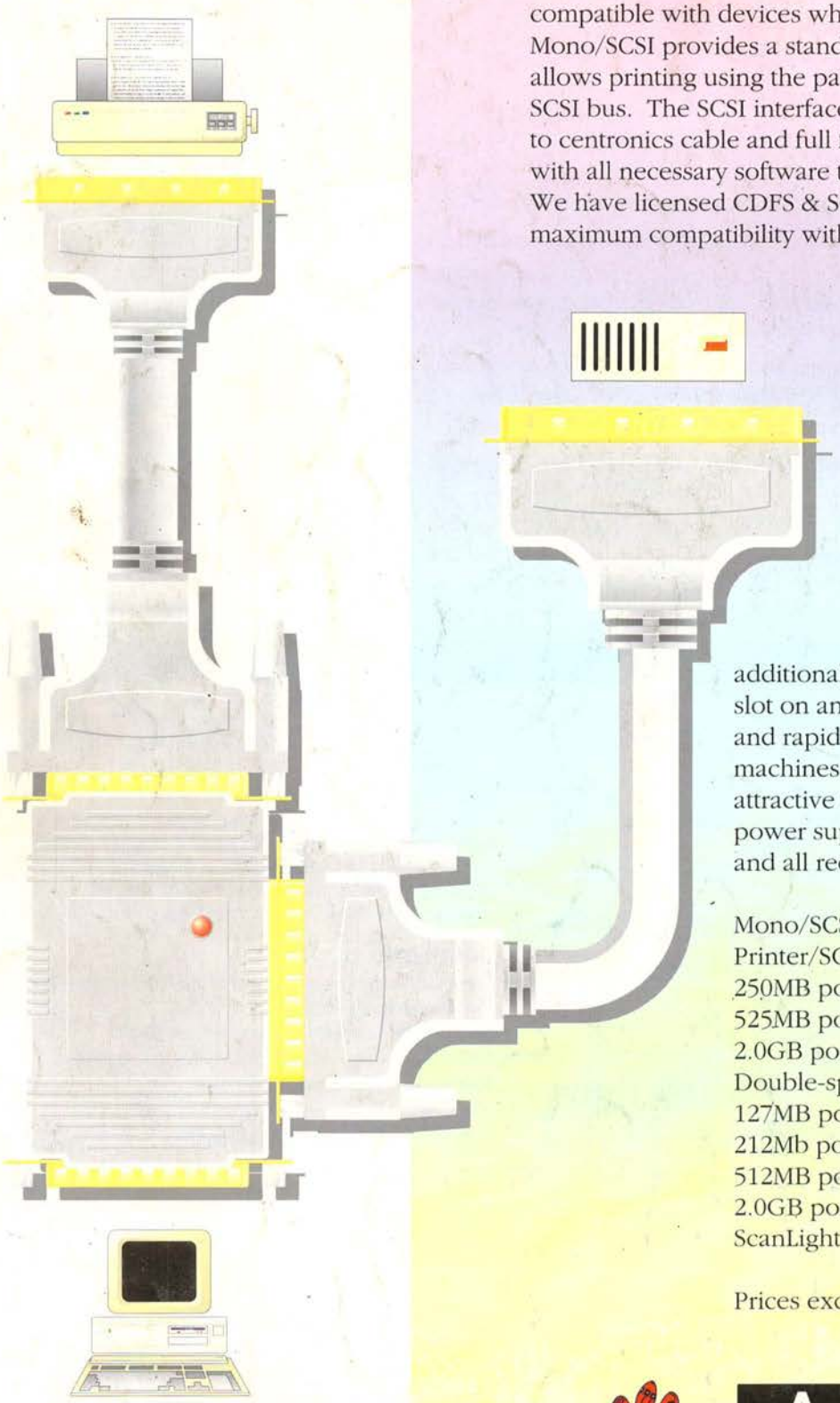

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